# Prehistoric Settlement and Roman Pottery Production at Blackbird Leys, Oxford

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SUMMARY

*A programme of archaeological evaluation, excavation and watching briefs was carried out in 1995-6 in association with a large housing development at Blackbird Leys. A settlement of later prehistoric date was examined, together with sample areas of the extensive Roman pottery production complex. The former included features of middle Bronze Age and early-middle Iron Age date. Roman features consisted of boundary and enclosure systems with associated foci of pottery production. Seven probable pottery kilns were identified, however some of the kilns and related features were poorly preserved. Some 1st-early 2nd-century activity was identified, but pottery production concentrated in the later 2nd-3rd centuries, thereafter continuing at least until the middle of the 4th century. A wide range of pottery fabrics and forms was produced. While most of these fell within the defined range of the industry, important groups and several pieces of considerable intrinsic interest were recovered.*

A large area of land (*c.* 25 ha., centred at approximately SP 553 021) lying in Sandford parish, south-west of the 1960s housing estate of Blackbird Leys on the south-east side of Oxford, was recently developed for further housing. The immediate vicinity of the mid-late 1990s phase of development of Blackbird Leys has been known as a site of Roman pottery production since the later 19th century. Roman pottery kilns lying less than 100 m. north of the present development complex were excavated in 1879 and three kilns were recovered in 1961 during the construction of the existing housing estate to the east. Further kiln sites are distributed across the whole of east and south-east Oxford, though relatively few have been systematically excavated.

The recent development had a long and complex planning history. Much of this development was for social housing and was funded by Oxford City Council. The programme of archaeological work associated with the development was also funded by Oxford City Council, but resources were strictly limited. In 1995 the site was subject to low-level evaluation prior to the commencement of construction. The first phase of this work comprised a 50% sample magnetometer survey carried out by the Bartlett-Clark Consultancy, the report on which was incorporated into a subsequent document.[1] Fieldwalking was also undertaken and reported on by Richmond.[2] This was followed by limited trenching, carried out by the Oxford Archaeological Unit, now Oxford Archaeology (OA), and Tempus Reparatum.[3] A watching brief was then maintained during the

[1] A. Richmond, 'Archaeological Evaluation (Stage 2) Site D and Site D extension, Blackbird Leys, Oxford' (Tempus Reparatum unpubl. client report, 1995a), Appendix 3.

[2] Ibid. Appendix 4.

[3] 'Peripheral Road and Housing Area C2, Blackbird Leys, Oxford, NGR SP555020, Archaeological Evaluation Report' (Oxf. Archaeol. Unit unpubl. client report, 1995a); Richmond, op. cit. note 1; A. Richmond, 'Archaeological Evaluation (Stage 3) Recreation Ground, Blackbird Leys, Oxford' (Tempus Reparatum unpubl. client report, 1995b).

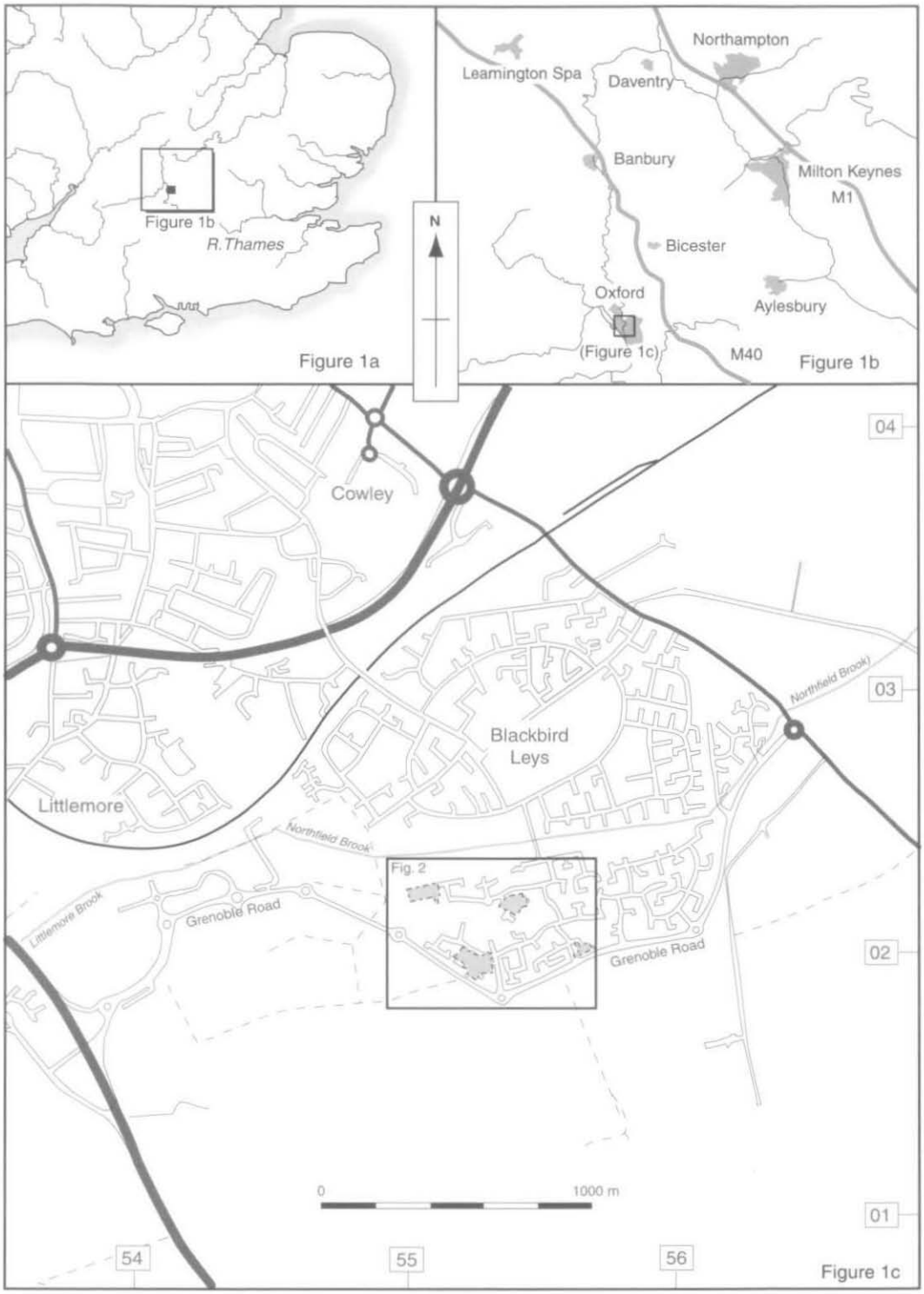


Fig. 1. Site location.

construction of the peripheral road (now Grenoble Road) for the new housing area.[4] Together this work revealed several concentrations of Roman activity related to pottery production, spread across much of the development area. An important Iron Age settlement, possibly with Bronze Age origins, was also located at the extreme south-eastern corner of the development area. The portion of the Iron Age settlement located within the line of the peripheral road was excavated.[5]

In light of these results, an 'Extended Master Brief for archaeological mitigation' of the threat to the archaeological deposits posed by the development was prepared on behalf of Oxford City Council by the Oxford Archaeological Advisory Service (OAAS). This document defined a number of areas of particular archaeological importance, including three Zones (C, D and E) within the main part of the Social Housing development area and that part of the Iron Age site (Zone A) lying adjacent to the peripheral road within the area of the development complex assigned to private developer housing. Subsequently, limited excavation was carried out in these areas, Zones A and C being examined by Oxford Archaeology and Zones D and E by Tempus Reparatum. Brief reports on this work were then submitted.[6] All these documents contained summary quantification of the archive and, to varying degrees, assessments of the character and quality of the structural and artefactual evidence and proposals for further work.

Subsequently, Tempus Reparatum went into liquidation and their archives and finds relating to these sites were passed to OA with the agreement of Oxford City Council. It was proposed that the results of the excavations by both organisations should be presented, as far as possible, as a coherent whole. No account has been taken, however, of work carried out by Tempus Reparatum (subsequent to evaluation by RPS Clouston) on the adjacent and closely-related Minchery Farm stadium site. This was a separate project, although the two sites should ideally be seen together. Further work immediately north of Zone E of the present site was undertaken by Thames Valley Archaeological Services in 1999.[7] Full analysis and reporting of the 1995-6 work has not been possible within the constraints of the project due to the limited funds available for post-excavation work. The present report therefore comprises only a very selective summary of the evidence; additional information on some aspects of the site can be found within the project archive.

The report takes as its starting point the information presented in the site synopses already mentioned.[8] The data from the Tempus Reparatum sites was re-examined in its entirety, however, this re-examination was targeted on those aspects of the site thought to be most important either in a regional or national context. The prehistoric settlement is of regional significance, while aspects of the Roman pottery industry, one of the largest in Roman Britain, are considered to be of national importance. This report, however, presents more detailed evidence for the prehistoric component of the site, on the basis that the broad parameters of the

[4] 'Blackbird Leys Peripheral Road, Oxford, NGR SP 555020, Archaeological Watching Brief' (OAU unpubl. client report, 1995b).

[5] 'Peripheral Road and Housing Area C2, Blackbird Leys, Oxford, NGR SP555020, Archaeological Excavations 1995-96: Post-excavation Assessment and Publication Synopsis' (OAU unpublished client report, 1996b).

[6] Ibid.; 'Blackbird Leys 'Zone C', Oxford, NGR SP 554022, Archaeological Salvage Excavation Report' (OAU unpubl. client report, 1996a); P. Kiberd, 'Archive Report and Summary Report on Archaeological Excavation: Archaeological Zones E and D, Blackbird Leys, Oxford' (Tempus Reparatum unpubl. client report, 1996).

[7] S. Ford, 'The Excavation of Roman Deposits on the Line of the Fry's Hill Gas Trench, Blackbird Leys, Oxford' (Thames Valley Archaeol. Services unpubl. client report, 1999).

[8] See note 6.

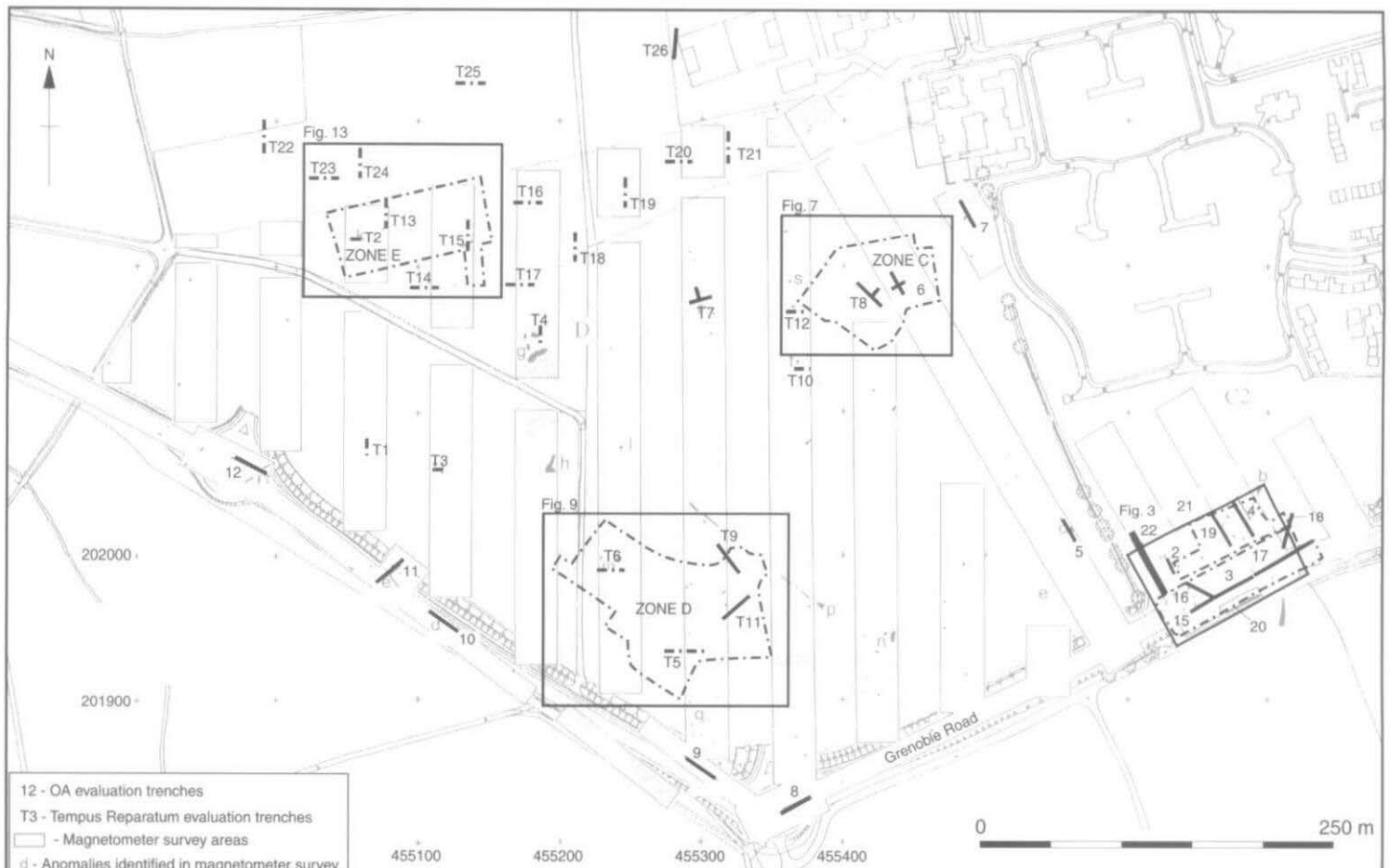


Fig. 2. Areas of archaeological investigation.

Roman pottery industry are well understood, though detailed analysis of the Zone D and E sequences and of the pottery from them would be highly desirable. The finds from Zones C, D and E were treated together, but the dispersed locations of the excavated areas, and in particular the variations in the quality and quantity of evidence recovered from them, precluded the use of a unified chronological scheme in their description.

It should be noted that one feature of this report is a low level of illustration, particularly with regard to Roman pottery. The decision to omit such illustrations was taken purely as a consequence of economic constraints. For present purposes, it is hoped that reference to this material in terms of well-known typologies will serve most purposes. It is proposed that an appropriate level of pottery illustration can be achieved in due course through a collaborative project with Swindon College School of Art and Design, the results of which will be posted on the OA website.

## BACKGROUND

### *Topography and Geology*

The sites examined lie on ground which slopes gently down to the north and west toward the Northfield Brook from a high point in the vicinity of Zone A, close to the south-east corner of the development area, overlooked by higher ground to the south. The underlying deposits are of Upper Jurassic Kimmeridge Clay above Ampthill Clay which outcrops in a narrow band to the north-west. Further north and west lies the Beckley Sand Member of the Middle Jurassic Corallian Formation. The junction between the Ampthill Clay and the Beckley Sand is partly obscured by quaternary Head deposits, some alluvial material occurs in the bottom of the valley of the Northfield Brook which lies beyond the northern limit of the development area.

Zone A lay on the stiff Kimmeridge Clay, while in Zone C the natural subsoil was a yellowish-brown fine sandy clay, typically *c.* 0.4 m. deep over blue-grey clay. In Zones D and E the subsoils were of sand overlain by a thin calcareous gravel, in turn covered by alluvial deposits of varying depth.

### *Archaeological and Historical Background*

There was no evidence for significant prehistoric activity within the development area prior to the commencement of work, though stray finds of all main periods from the Palaeolithic onward are known from the general area. Flintwork from the Mesolithic onward and pottery from the Neolithic Period and early Bronze Age has been recovered from the Oxford Science Park just west of the present site.[9]

Roman archaeology in this area is well known and significant. The main north-south Roman road from Dorchester-on-Thames to Alchester passed *c.* 0.5 km. to the east of the development area and formed an important communications link for the Roman pottery industry which extended through east and south-east Oxford, spreading as far north as Noke and as far south as Dorchester itself.[10] Centres of pottery production at Rose Hill and Cowley lie approximately 1.5 km. to the north-west and north respectively, while the major site at Lower Farm, Nuneham Courtenay, is 2 km. south-west.[11] Further pottery kilns are known from Littlemore, approximately 1 km. to the west.

[9] J. Moore, 'Excavations at Oxford Science Park, Littlemore, Oxford', *Oxoniensia*, lxvi (2001), 167.

[10] C.J. Young, *The Roman Pottery Industry of the Oxford Region* (BAR 43, 1977, repr. 2000 with updated bibl.): hereafter 'Young'.

[11] P. Booth, A. Boyle and G.D. Keevill, 'A Romano-British Kiln Site at Lower Farm, Nuneham Courtenay, and other sites on the Didcot to Oxford and Wootton to Abingdon water mains, Oxfordshire', *Oxoniensia*, lviii (1993), 87-217.

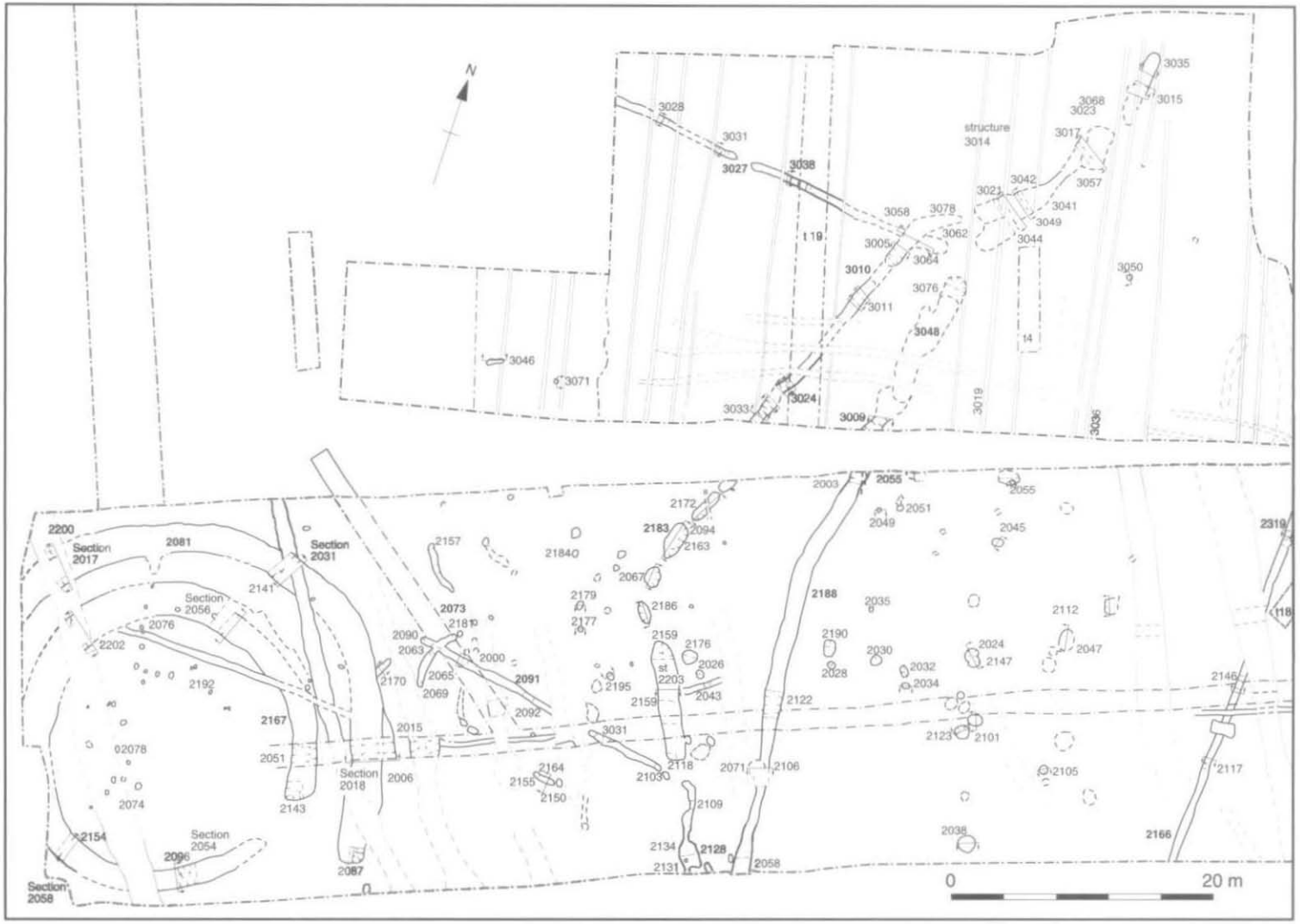


Fig. 3. Zone A excavation plan.

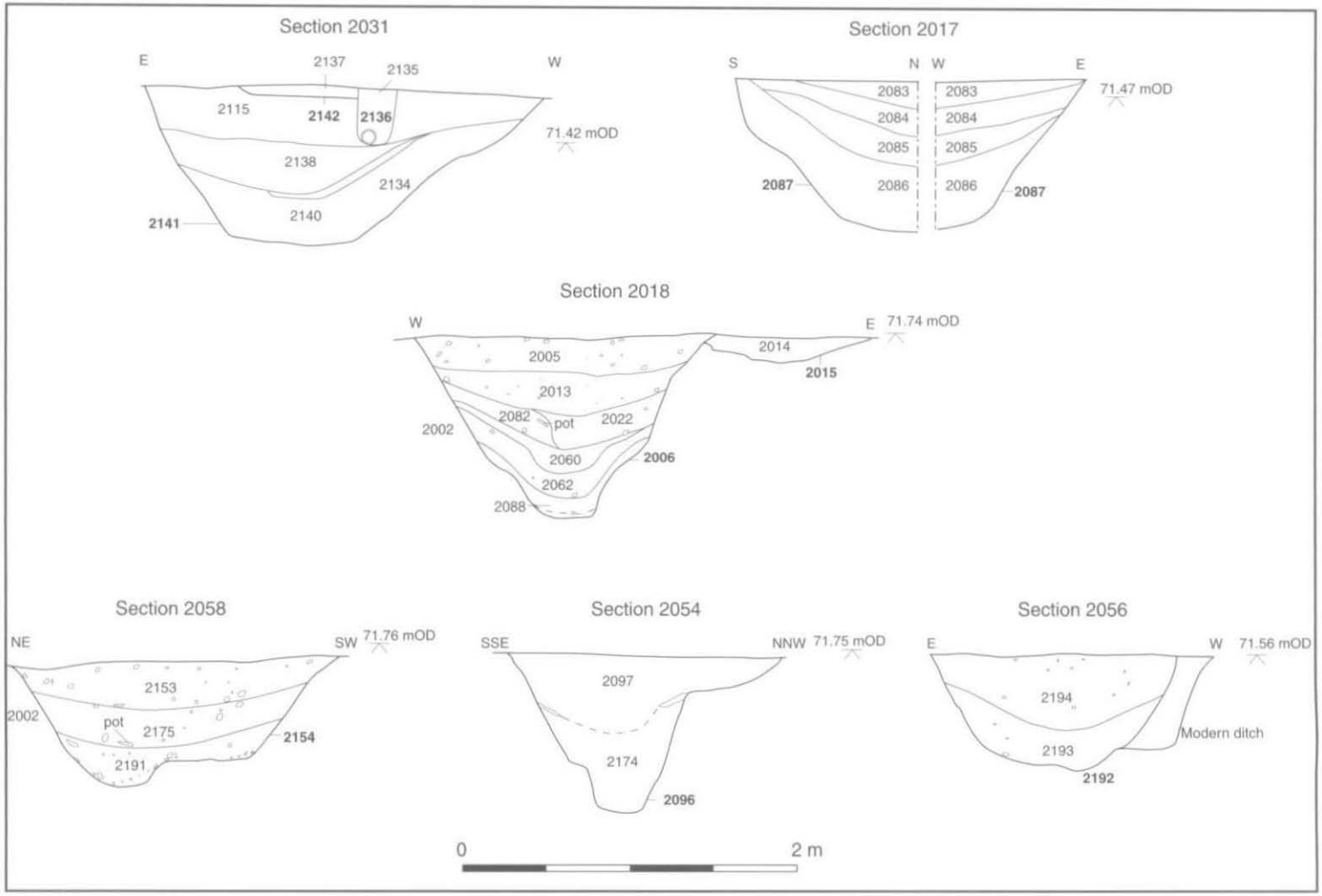


Fig. 4. Zone A principal feature sections.

The most closely related evidence comes from immediately north of the development area, where four kilns and associated features were excavated in 1879.[12] Pottery finds considered to be related to these kilns extended into the development area. Three pottery kilns were recovered during the building of the 1960s development of Blackbird Leys.[13] These were never reported on in detail, though the pottery was examined by Young.[14] As mentioned above, a westerly continuation of the complex under discussion here was examined in relation to the development of the new Oxford United football stadium and its environs. The features revealed included a further one certain and two probable pottery kilns.[15]

Significant evidence for Anglo-Saxon settlement of 6th-7th century date was examined recently at Oxford Science Park less than one kilometre to the west.[16] Between the two sites lies Minchery Farm, the site of Littlemore Priory, a house of Benedictine nuns probably founded during the reign of King Stephen.[17] A peat deposit, perhaps representing the fill of a fishpond associated with the medieval priory, was located just south of it at SP 5452 0223 during monitoring of the construction of Grenoble Road.[18] The peat deposit is not reported on further here. Medieval and later use of the present site was presumably agricultural. There is no inclosure map for the area and it has been suggested that the parish of Sandford was enclosed very early.[19] Subsequently, much of the western part of the site lay within the confines of the Oxford Corporation Sewage Farm, established in 1877.

## THE EXCAVATIONS: ZONE A (Fig. 3)

The site was excavated in two main parts. In 1995 an evaluation and watching brief along the peripheral road and within the adjacent Housing Area C2 revealed evidence of important Iron Age settlement remains, with some Bronze Age activity. This resulted in the immediate excavation in 1995 of Trench 20, 110 m. long and 30 m. wide, aligned roughly E.-W. along the axis of the peripheral road. In 1996, an immediately adjacent area lying N. of the peripheral road within the housing development was also excavated (Trench 21). This was 60 m. by 30 m. with extensions to the N. and W. An area of 200 sq. m. at the NE. corner of the trench was devoid of archaeological features and was promptly backfilled to allow access for construction purposes. The entire excavated area covered *c.* 0.5 ha.

All features on the site were cut into the mottled natural clay (Kimmeridge Clay). This was mostly blue-grey in colour, but also varied to red-brown and yellow-brown. It contained scarce rounded pebbles and very occasional patches of sandy gravel. The overburden was stripped by machine to the level of the natural clay. Overlying the natural clay and all archaeological features was a ploughsoil of uncertain, but probably modern, date. This was a mid brown loamy clay with occasional rounded pebbles and charcoal flecks which was 0.26 m. thick in Trench 20 and thinned further north to 0.10-0.17 m. in Trench 21. The ploughsoil was covered across the entire site by modern topsoil, consisting of a compact mid grey-brown loam, 0.15-0.30 m. thick with occasional rounded pebbles, coal and modern debris.

Trench 20 was excavated under difficult conditions at the end of July and during August 1995. Very bright and hot days caused the soil to dry out, thus severely impairing the visibility of features. Trench 21 was excavated during September 1996. The majority of archaeological features were extremely shallow, having been truncated perhaps by medieval ridge and furrow and certainly by more recent deep ploughing and modern land drains, mostly on a N.-S. alignment. The truncated features were vulnerable to contamination, significantly limiting the quality of both artefactual and environmental evidence. Nevertheless, a sequence of features from the middle Bronze Age to the middle Iron Age was recovered.

[12] T. May, 'On the Pottery from the Waste Heap of the Roman Potters' Kilns discovered at Sandford, Littlemore, Oxon., in 1879', *Archaeologia*, 72 (1922), 225-42; Young, 255.

[13] D. Sturdy and H. Case, 'Archaeological Notes: 1961', *Oxoniensia*, xxvi/xxvii (1962/3), 337; Young, 242-3.

[14] Ibid.

[15] 'Oxford United Football Club stadium, evaluation report' (RPS Clouston unpubl. client report, 1996).

[16] J. Moore, op. cit. note 9.

[17] *V.C.H. Oxon.* ii, 75-6; W.A. Pantin, 'Minchery Farm, Littlemore', *Oxoniensia*, xxxv (1970), 19-26.

[18] OAU, op. cit. note 4, p. 2.

[19] *V.C.H. Oxon.* v, 267.

## THE SITE SEQUENCE

### *Bronze Age pit*

Evidence for Bronze Age activity was focused in pits 2147, 2101, 2024 and 2123 in Trench 20. Pit 2101 was circular in shape, 1 m. wide and 0.2 m. deep, with slightly irregular sides. It contained a single fill of mid orange-brown silty clay with a moderate amount (10%) of burnt stone, a decorated cylindrical loomweight (Fig. 6) and two sherds of middle Bronze Age pottery. Pit 2024 was also circular, 0.8 m. wide and 0.25 m. deep, with a light greyish brown clay fill. This pit was cut by pit 2147, 0.8 m. x 0.26 m., with a light grey silty clay fill containing burnt and worked flint, and 38 sherds of possible late Bronze Age pottery. Pit 2123 was 1.08 m. across x 0.14 m. deep with gently sloping sides. The dark orange-brown silty clay fill contained 20% burnt stone distributed throughout, and ten possible late Bronze Age sherds. Several other pits were located nearby, but did not contain dating evidence. Their dimensions were similar to those of the above-mentioned pits.

A small amount of Bronze Age pottery was discovered re-deposited in ditch structures 2188, 2183 and pit 2182, the latter located at the northern terminus of structure 2073.

### *Iron Age Occupation*

The Iron Age features included two concentric ditches forming a penannular enclosure located in the west of Trench 20. The western and southern parts of the outer ditch lay outside the limit of excavation. Both ditches had SE.-facing entrances. Ceramic evidence suggests a middle Iron Age date for the enclosure. To the E. of this structure were several ditches/gullies, aligned NE. to SW. and NW. to SE. These were approximately perpendicular to each other and may have formed part of a co-axial system of field boundaries. The pottery from these features dated from the early-middle Iron Age. A number of small pits and postholes were also revealed, although no dating evidence was recovered.

*Inner penannular ditch*: The majority of the inner penannular ditch, 2167, was visible in Trench 20, with only a small portion of the SW. side obscured. The entrance faced SE. and the internal diameter was 19 m. The width of the ditch varied from 3 m. in the N. and W., to 1.5 m. on the S. side. Four sections (Fig. 4, sections 2058, 2054, 2056) were excavated through the main body of the ditch, and one through the S.-facing terminus. The ditch had moderate to steep-sloping sides with a flat to concave base and varied in depth from 0.70-0.92 m. The primary fill was of clay, mid grey/blue-grey to orange-brown in colour, with sparse charcoal flecks and occasional lenses of gravel. Up to three secondary fills were noted, lighter in colour than the primary fills and composed of silty clay, again with sparse charcoal flecks and gravel. The pottery was mainly of middle Iron Age date, with some possible early-middle Iron Age sherds. No evidence of structural remains, pits or other features survived within the inner ditch.

*Outer penannular ditch*: The outer penannular ditch 2081 was concentric with the inner ditch, but only the NE. arc was revealed in Trench 20. The external diameter was estimated at *c.* 34 m., with an internal diameter of 28 m. and a width of *c.* 3 m. One terminus was revealed, suggesting a SE.-facing entrance, in alignment with that of the inner ditch. Two sections were excavated through the main body of the ditch (Fig. 4, sections 2031, 2018), and a further section through the S.-facing terminus (Fig. 4, section 2017). The depth varied from 0.80-0.95 m., and the ditch had moderate to steep-sloping sides, with a gentle break of slope to a flat base. Between four and seven episodes of silting were present, with a higher concentration of finds noted in the upper fills of the two sections. The fills were of clay varying in colour from yellowish brown to dark grey, with sparse charcoal flecks.

*Ditch 2188/3048/3014*: Ditch 2188 ran approximately NE. to SW. across the width of Trench 20, curving slightly to the E. at the northern end, and continued into Trench 21 as ditch 3048. In Trench 20, four sections were excavated through the ditch. Its width varied between 0.65 m. and 1.2 m., and the depth from 0.33 m. to 0.38 m. The sides were moderately steep-sloping. There was normally a single fill of greyish brown clay sand, and the southernmost section contained a second, similar fill. Pottery of early-middle and middle Iron Age date was recovered, plus one sherd of re-deposited middle Bronze Age pottery.

At the southern end of Trench 21 the ditch was 1 m. wide and 0.35 m. deep. The fill was slightly more clayey and contained sparse flecks of charcoal, gravel, burnt stone and limestone, as well as possible early-middle and middle Iron Age pottery. The ditch ran toward the NE., but its immediate continuation was obscured by a modern drain and machine tracks. It initially appeared to stop at right angles to the terminus of 3027, with a gap of 2 m. between the two, however, it may have continued NE. as feature 3014 after a break of 2.5 m. Feature 3014 consisted of two intercutting ditches, the more easterly of which truncated the western one, although the fills were of similar mid-dark greyish brown clay. The easterly section was 1 m. wide, 0.38-0.42 m. deep and truncated by a land drain. The westerly section was 0.44-0.63 m. deep and also truncated by a land drain. This truncation prevented the identification of the ditch termini and it is uncertain which of the two cuts continued as the single feature in the NE. part of this ditch alignment. The pottery from both ditches was broadly dated to the early-middle and middle Iron Age. It is uncertain if 3014 was part of the

same boundary as 3048/2188. Immediately to the E., there was a shallow scoop (3023) filled with a dump of material. The relationship of this spread to the ditch was obscured.

One metre north, there was a linear feature (3015), 5 m. long, 0.9 m. wide and 0.27 m. deep, truncated to the E. and W. by ploughing and a land drain. The section through the N. terminus revealed that the feature became shallower toward the end. It had a single fill of dark brown slightly silty clay with sparse gravel, extremely degraded bone and early-middle and middle Iron Age pottery.

*Gully 3027*: Gully 3027 was shallow and segmented and ran NW. to SE. from the western edge of Trench 21, stopping 2 m. short of ditch 3048/3014. The gully was perpendicular to ditch 3048/3014 and appears to have been part of the same field/boundary system. It varied in width between 0.32 m. and 0.6 m. and was approximately 0.2 m. deep. It was filled by a single fill of light to mid greyish brown silty clay with moderate gravel, fired clay, and burnt material noted in one of the sections. The sides were steep and the base was flat. Approximately 2 m. from the east terminal, gully 3027 was cut by ditch 3010 and was thus earlier than it, although probably still within the early-middle Iron Age period.

*Gully 2091*: Approximately 45 m. S. of gully 3027, a similar gully (2091) was observed in Trench 20 running parallel to 3027. Its sides were moderate to steep-sloping, and its base was flat. The gully was 0.12-0.15 m. deep, though an intervention through it during the evaluation recorded a depth of 0.3 m. It was filled by a single deposit of light grey-brown to dark brown silty clay with occasional gravel and charcoal flecks. The width of the gully was irregular, varying from 0.28-0.48 m. The SE. terminus was poorly defined due to modern disturbance. The gully appears to have had two segments, and its terminus lay 1 m. short of structure 2203, suggesting that although the N.-S. linear feature may have been earlier, it was still visible. The N. terminus was cut by a curving linear gully structure (2073), 5 m. in length, 0.4-0.6 m. wide and 0.09-0.24 m. deep. This curving gully formed a T-shape with gully 2091 and had a single fill of dark brown silty clay with charcoal flecks. Early-middle Iron Age pottery was noted in both features. At the NE. terminus there was a posthole (2181), 0.36 m. wide and 0.11 m. deep, containing a fill of dark brownish grey silty clay with rare burnt stone and charcoal, one middle Bronze Age and two middle Iron Age pottery sherds.

Four metres S. of gully 2091 and parallel to it was a small linear feature (2164), 1.8 m. long, 0.4 m. wide and 0.1 m. deep. This contained a single fill of mid grey-brown clayey sand with rounded gravel and no dating evidence. At the SE. terminal there was a small pit (2150), also 0.4 m. wide and 0.1 m. deep, again with a single fill of the same material, and containing one pottery sherd in a sandy fabric of uncertain (?Iron Age) date.

An isolated, small irregular gully (2157) lay N. of structure 2073. It was 0.36 m. wide, 4 m. long, 0.06-0.24 m. deep and had a single fill of dark orange-brown silty clay containing sparse burnt stone and two early-middle Iron Age pottery sherds.

*Ditch 2203/2183/3010*: Feature group 2183 comprised a group of linear features and pits on a NE.-SW. alignment. The most northerly in Trench 20 (2172) was oval in shape, 0.8 m. wide, 0.25 m. deep and truncated by a land-drain. It had a single fill of grey clay with a moderate amount of gravel. South of this were two interlinking pits (2094 and 2163), sub-rounded in plan and between 0.8 and 1.2 m. across. Both survived to a depth of 0.4-0.45 m. and contained fills of grey clay with a moderate amount of charcoal, overlain by a compacted grey clayey fill with moderate gravel and containing middle Iron Age pottery, a bovine skull, and other bone fragments. Immediately to the S. was pit 2067, again an irregular circle in shape, 1.45 x 1.2 x 0.3 m. deep, which contained two fills. The primary fill was yellowish brown clay with moderate gravel and sparse charcoal. This was overlain by a grey clay fill with moderate charcoal which contained two middle Iron Age pottery sherds. Further S. there was an oval pit (2186), 1.6 x 1 x 0.25 m., which contained a grey clay fill with gravel, animal bone and three early-middle Iron Age pottery sherds.

S. of this group of pits was a N.-S. aligned ditch segment (2203), 9 m. long, 1.6 m. wide and 0.1-0.3 m. deep. The northern part of this feature was unclear and irregular, and there may have been a pit immediately N. of it. The ditch contained a fill of dark brown silty clay with charcoal, early-middle Iron Age pottery and a spindle whorl. The profile of the southern terminal showed gently sloping sides and a concave base. Two possible pits were located E. of ditch 2203. The largest (2176) was 0.9 m. across and 0.08 m. deep and contained three middle Iron Age pottery sherds in a single fill of light yellowish brown sandy clay with sparse gravel. The smaller, more southerly pit or posthole (2026) was 0.4 m. wide and 0.07 m. deep, with a single fill of mid brown clay with sparse gravels but no pottery.

Further S. of 2203, an irregular linear gully (2109 and 2131) continued in a N.-S. alignment. This was very shallow, only 0.04-0.11 m. deep, but had extremely steep sides and a flat base. The fill was a dark brown silty clay with sparse charcoal flecks. This was cut by circular pit 2128, 1.25 m. across and 0.25 m. deep with moderately sloping sides and an irregular concave base. It had a primary fill of dark brown silty clay with charcoal flecks, and a discrete secondary fill of abundant burnt organic material in a black silty clay matrix, seen mainly in the W. side of the pit. Into this pit was cut a posthole/stakehole (2134), 0.24 m. across and 0.12 m. deep with steep sides and a pointed base. The pit and posthole contained a similar fill of dark brown silty

clay with charcoal. Gully 2203 contained pottery dated to the middle Iron Age and pit 2128 contained sherds dated to the early-middle Iron Age.

Feature group 2183 continued N. to the limit of the excavation, and appears to have continued into Trench 21. Ditch 3010 ran from the southerly limit of excavation in a NE. direction. Four sections were excavated through the ditch, which was 0.7-0.9 m. wide and 0.2-0.3 m. deep. The most southerly section contained a fill of mid greenish brown silty clay with common flecks of charcoal and rare burnt limestone, a number of small animal bones and 21 possible early Iron Age pottery sherds. The remaining sections also contained a secondary fill of mid greyish brown silty clay with moderate amounts of charcoal. The pottery was primarily early and early-middle Iron Age, although the tertiary fill of one section contained 30 middle Iron Age pottery sherds. This ditch then curved to the E. after cutting through ditch 3027, and may have been related to ditch segment 3014.

To the W. of structures 2203 and 2183 was a N.-S. line of three small, undated postholes (2184, 2179, 2177), 0.4-0.6 m. across and 0.04-0.08 m. in depth, irregularly spaced over 6 m. All had a single gravelly fill of mid grey clayey sand. Four metres to the SE. was a further possible posthole or small pit (2195), 0.5 m. in diameter and 0.07 m. deep. This contained a very similar fill with a small amount of burnt stone and no pottery.

*Ditch 2166*: A linear ditch/gully ran across the width of Trench 20 in a NNE.-SSW. direction, roughly parallel to ditch 2188, and 33 m. east of it, but was not seen further N. in Trench 21. The feature was 0.37-0.6 m. wide and 0.18-0.24 m. deep with moderate to steeply sloping sides and a flat base. There was one fill of firm greyish-yellowish brown silty clay with occasional gravels and charcoal flecks. This produced a small assemblage of pottery assigned to the early-middle Iron Age and middle Iron Age.

SE. of this feature was a sub-rectangular pit (2127), 2.3 m. long, 1.5 m. wide and 0.94 m. deep. It had steep sides sloping to a narrow concave base, and contained four fills. A thin primary layer of mid grey clay with flecks of charcoal, against the W. side of the pit, contained three middle Iron Age pottery sherds. Above this were two dumps of material, one from the W. and one from the E. The W. one was of dark brown/black silty clay containing abundant burnt clay and seven Iron Age pottery sherds. The E. fill was of mid greyish brown clay with several large sub-angular stones toward the base and six middle Iron Age pottery sherds. One final large dump of material, a light orange-brown clay containing burnt stone but no other finds, had been tipped in from the E. side. The feature was cut by a modern land drain.

*Unphased pits in Trench 20*: A number of small pits/postholes were located between ditches 2188 and 2166. The concentration of Bronze Age pits is detailed above, but between these were three other features that did not contain dating evidence. 2034 and 2032 were postholes, both with steep sides and of similar dimensions, 0.7 x 0.5 x 0.15 m. They were filled with grey-buff clay with sparse gravel. To the NW. was a slightly larger ovoid feature (2030) with an orange clay fill, which may have been a tree-throw hole. To the W. was a possible pit (2190), ovoid in shape, 0.85 x 1.1 m., and 0.1 m. deep, filled with greyish brown silty clay containing occasional charcoal and burnt sandstone fragments. Further N. was posthole/pit 2035, 0.4 m. across and 0.23 m. deep. It also contained a greyish brown silty clay fill with moderate burnt stone, a discrete patch of burnt clay, and two middle Iron Age pottery sherds. E. of this were two ovoid features (2047 and 2112), which may have been pits or tree-throw holes, 1.2-1.6 m. in length, 1 m. wide and 0.08-0.12 m. deep. 2047 contained a fill of reddish brown clayey sand with gravel, and 2112 was filled with mid brown clay with sparse flint gravel.

In the north of Trench 20, there was a small posthole or stakehole (2049), 0.14 x 0.18 m. and 0.08 m. deep, with a grey clay fill. Immediately E. was a slightly larger posthole (2051), 0.4 m. in diameter and 0.05 m. deep, with a buff clay fill. Seven metres SE. was another posthole of similar dimensions, and S. of this was a steep-sided oval pit or large posthole (2045), 0.6 x 0.4 x 0.16 m. This contained a fill of mid grey clay with sparse gravel and charcoal flecks, burnt bone and several burnt pebbles. Toward the S. end of the area, there was a further posthole (2105), oval in shape, 0.42 x 0.46 x 0.08 m., with a fill of brown clay with charcoal flecks. Also in the S. was a possible pit (2038), an irregular circle in shape, 1.3 m. in diameter and 0.18 m. deep, filled with greyish yellow clayey silt with sparse gravel.

*Pits in Trench 21*: In the most south-westerly part of Trench 21, there was a small elongated oval feature (3046), aligned E.-W. This was very shallow and contained a single fill of greyish brown silty clay with frequent charcoal, burnt bone and two sherds of Iron Age pottery. Four metres to the E. of this there was a possible posthole (3071), 0.4 m. wide and 0.17 m. deep, filled with a mid orange-brown silty clay and a moderate amount of charcoal.

### *Post-medieval Feature*

In addition to the evidence of recent ploughing and field drains mentioned above, a dry stone limestone wall (2107) lay at the E. edge of Trench 20. This was not dated directly, but was presumed to be post-medieval or modern.

## FINDS AND ENVIRONMENTAL EVIDENCE

### PREHISTORIC POTTERY by KAYT BROWN (Fig. 5)

The prehistoric pottery assemblages from the 1995 evaluation and the subsequent excavations in 1995 and 1996 totalled 1,448 sherds weighing 7906 g. Of these, 429 sherds came from the evaluation, with the subsequent excavations producing 596 and 425 sherds respectively. A further 78 sherds (161 g.) were recovered from sieved soil samples in 1995. The evaluation and excavation assemblages were in poor condition with poor surface preservation and low average sherd weights of 5.7 g., 6.1 g. and 4.3 g. respectively (excluding the material from samples). The more fragmentary nature of the sherds from the 1996 excavation may reflect the depositional history of the material as this area was located further from the apparent settlement focus. The material from all three investigations is treated here as a single assemblage, the majority of which can be assigned to the early-middle Iron Age. A limited amount of Bronze Age pottery was identified in Trench 20 and an extremely limited amount of Roman pottery and several post-medieval sherds came from unstratified contexts during the evaluation.

A total of 316 contexts produced pottery. The majority of these were ditch fills, although some Iron Age material was recovered from a series of pits within structure 2183. Another group of pits produced a small amount of middle Bronze Age pottery. All fabrics were handmade and the irregularly fired surfaces indicate uncontrolled firing conditions, as would occur from the use of an open bonfire. Although handmade, the exact manufacturing technique is indiscernible, due to the poor condition and fragmentary nature of the sherds. Decoration was virtually absent with a single decorated rim sherd dated to the early Iron Age and some possible traces of burnishing surviving on a globular jar. The only possible evidence of vessel use was the leaching on the interior surface of fabric LA5, although this could also have been the result of post-depositional processes. No sooting or limescale was observed on vessel surfaces.

The pottery was examined microscopically (x20) and fabrics were quantified by number of sherds and weight by context. Vessel numbers were recorded by rim count. Decoration and surface treatments were recorded where observed. The fragmentary nature of the assemblage meant that a number of sherds were too small to be closely identified by fabric type. Where this was the case, the sherds were recorded by primary inclusion type only (e.g. shell, sand, etc.). These sherds were generally less than 1 g. in weight. The same procedure was adopted for recording the material recovered during environmental processing. The pottery recording system employed was that currently in use at OA. This system incorporates the recent guidelines for recording prehistoric pottery published by the Prehistoric Ceramics Research Group.[20] A limited amount of material from the evaluation trenches was principally late Roman in date and comprised mainly Oxford products, including mortaria and a small amount of local reduced sandy wares. This material presumably derived from the nearby production sites and is not considered further here.

#### *Fabrics and forms* (Fig. 5)

An alphanumeric system of fabric codes was used, with the fabrics recorded by principal inclusions (usually only the two most important inclusion types) on a scale of fineness decreasing from 1 to 5. The principal inclusions are Sand (A), Calcareous grit (C), Flint (F), Grog (G), Limestone (L), Mica (M), Clay pellets (P), Quartzite (Q), Shell (S) and Organic material (V), occurring either as the sole significant inclusion type or in combination with others. Fabrics are grouped in relation to their principal inclusion type, but a small number of fabrics were of genuinely mixed composition (i.e. with the main inclusion types of equal importance); these have been listed first. 22 fabrics (excluding undifferentiated sand and shell-tempered fragments) were identified and are described below.

*Mixed fabrics*

*PA3 and PA4*: Soft fabric with moderate ferruginous clay pellets (1.0–3.0 mm.) and moderate well-sorted quartz (<1.0 mm.). 52 sherds, 435 g. Forms: Barrel jars, simple even-sided rounded insloping rim. Decoration comprises faint finger-tip impression on surface and possible burnishing. Date: middle Iron Age.

[20] *The Study of Later Prehistoric Pottery: General Policies and Guidelines for Analysis and Publication*, Prehistoric Ceramics Research Group (1997).

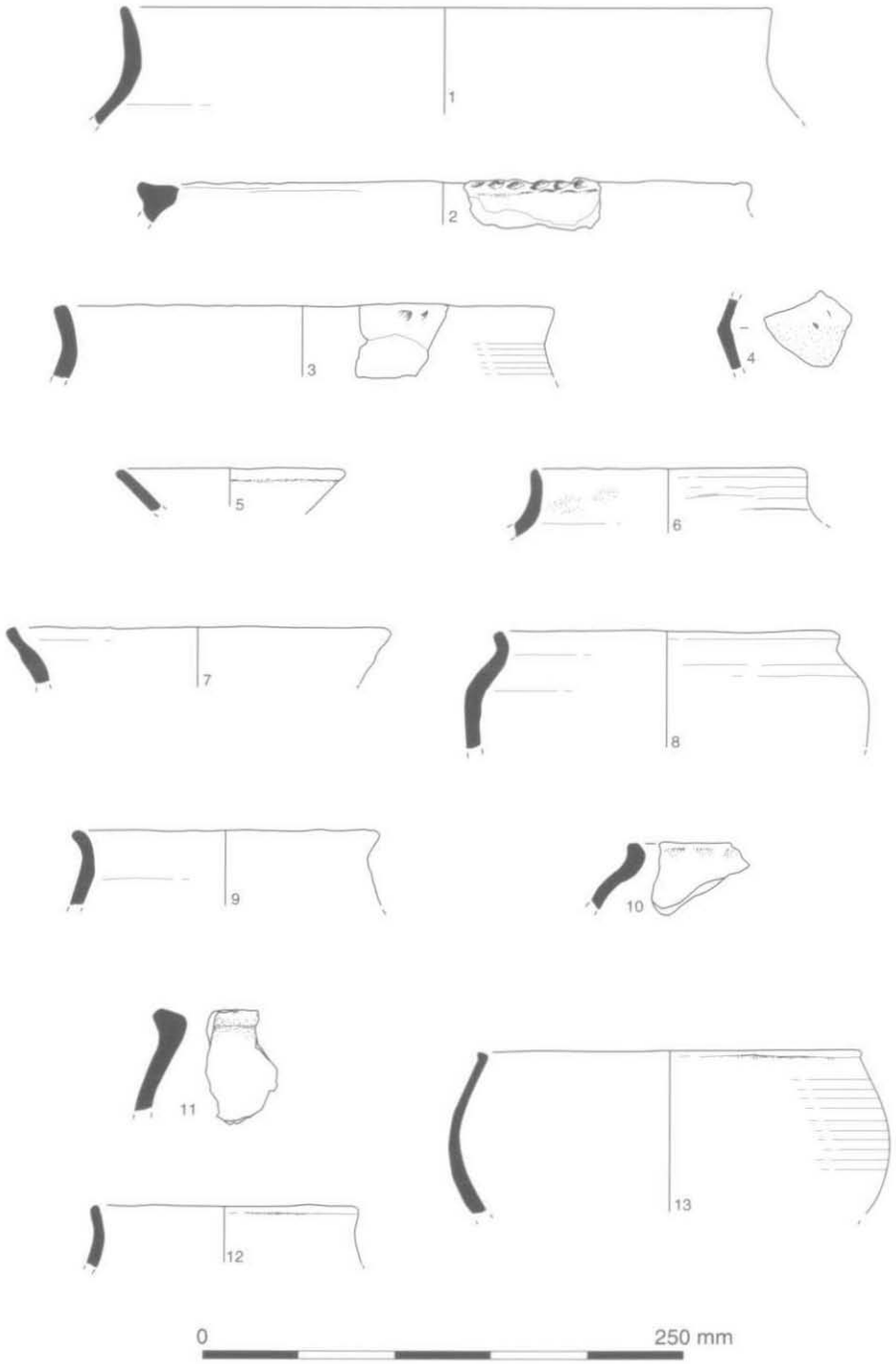


Fig. 5. Zone A prehistoric pottery.

*AS3 and SA3*: Moderate amounts of moderately sorted shell (0.5–1.0 mm.) and sub-angular sand. Rare to sparse ferruginous clay pellets (0.5–1.0 mm.) and sparse calcareous grits. 279 sherds, 1425 g. Forms: Jars with plain, even-sided rims, occasionally rounded and outsloping or thickened and outsloping. Compare Ashville B0, B2.[21] One carinated jar rim, Ashville, C2.[22] Date: early-middle Iron Age.

*AS4 and SA4*: Moderate to common shell (1.0–3.0 mm.) and sand (0.25–0.5 mm.). Rare coarse shell inclusions (<5 mm.). Comparable with Farmoor fabric AB1.[23] 41 sherds, 259 g. Forms: No featured sherds. Date: middle Iron Age.

*SA5*: Moderate to common shell (<3.0 mm.) rare coarse shell inclusions (<5 mm.). Rare to sparse moderately sorted sub-rounded quartz (<1.0 mm.) and ferruginous clay pellets (<3.0 mm.). Rare calcareous grits. 119 sherds, 718 g. Forms: Jars with even sided rounded vertical rim or short curving upsloping rim. Ashville ?B2.[24] Date: ?early Iron Age.

*Sand-tempered fabrics*

*A1*: Fine sandy fabric with moderate to common well-sorted sub-rounded quartz (<0.25 mm.). Mica visible in matrix. 1 sherd, 9 g. Forms: No featured sherds. Date: middle Iron Age.

*A2*: Hard, sandy fabric with moderate to common moderately sorted sub-angular quartz (0.5–1.0 mm.) and sparse dark-greenish grey grains (?glauconite). Comparable to Whitehouse Road fabric S3.[25] 24 sherds, 28 g. Forms: No featured sherds. Date: middle Iron Age.

*A3*: Soft sandy fabric containing moderate amounts of poorly sorted sub-rounded quartz (0.25–1.0 mm.) and sparse organic impressions (<3 mm.). Rare mica visible on surfaces. 191 sherds, 790 g. Forms: Jar with plain thickened rim. Date: middle Iron Age.

*A4*: Hard, dense sandy fabric with common to very common sub-angular quartz. 45 sherds, 168 g. Forms: Jar with even sided rounded upright rim. Date: middle Iron Age.

*AC3*: Moderately hard sandy fabric with sparse to moderate rounded calcareous grits (<1.0 mm.). 9 sherds, 154 g. Forms: No featured sherds. Date: middle Iron Age.

*AM2*: Very fine sandy fabric with mica the only visible inclusion. 1 sherd, 8 g. Forms: Ashville C2,[26] carinated shoulder sherd.. Date: early Iron Age.

*AP2 and AP3*: Soft, sandy fabric with moderate, poorly sorted quartz (0.25–1.0 mm.), sparse to moderate ferruginous clay pellets, rare to sparse calcareous grits and rare, sub-angular flint (>3 mm.). Similar to Whitehouse Road fabric I2.[27] 9 sherds, 74 g. Forms: Jar with even sided rounded upright rim. Date: middle Iron Age.

*AV3*: Moderate sub-rounded quartz sand and sparse to moderate burnt organic inclusions (1-3 mm.). 10 sherds, 46 g. Forms: No featured sherds. Date: middle Iron Age

*A*: General sand-tempered sherds. 107 sherds, 232 g., plus 32 sherds (64 g.) from soil samples.

*Flint-tempered fabrics*

*F3*: Coarse flint tempered fabric with sparse to moderate flint (1–3 mm.), sparse sub-angular quartz (0.5–1 mm.) and sparse mica in a sandy clay matrix. 8 sherds, 10 g. Forms: No featured sherds. Date: middle Bronze Age.

*F5*: Hard, coarse fabric with common amounts of flint (1–3 mm.) and sparse mica visible on surface. 56 sherds, 529 g. Forms: No featured sherds. Date: middle Bronze Age.

[21] C.D. De Roche, 'The Iron Age Pottery', in M. Parrington, *The Excavation of Iron Age Settlement, Bronze Age Ring Ditches and Roman Features at Ashville Trading Estate, Abingdon, 1974-76* (CBA Res. Rep. 28, 1978), 43.

[22] Ibid. 44.

[23] G. Lambrick, 'Finds: The Iron Age Pottery', in G. Lambrick and M. Robinson, *Iron Age and Roman Riverside Settlements at Farmoor, Oxfordshire* (CBA Res. Rep. 32, 1979), 35.

[24] De Roche, op. cit. note 21, p. 43.

[25] J.R. Timby, 'Pottery', in A. Mudd, 'Excavations at Whitehouse Road, Oxford, 1992', *Oxoniensia*, lviii (1993), 58.

[26] De Roche, op. cit. note 21, p. 44.

[27] Timby, op. cit. note 25, p. 57.

*Limestone-tempered fabrics*
*LA4 and LA5*: Common to very common limestone inclusions (<5 mm.), sparse organic impressions (<5 mm.), common poorly sorted quartz (<3 mm.) and rare ferruginous clay pellets. Rare black grains (<1 mm.). Some leaching on interior surfaces. 40 sherds, 367 g. Forms: Jar/bowls with plain tapered rims. Date: early-middle Iron Age.

*Quartzite tempered fabrics*
*Q*: General angular ?quartzite tempered fabric. 1 sherd, 2 g. Date: ?late Bronze Age.

*Shell-tempered fabrics*
*S3*: Common shell (<1 mm.), moderate calcareous grits and rare, moderately sorted quartz (<0.5 mm.). 6 sherds, 51 g.
Forms: No featured sherds. Date: middle Iron Age.

*SF3*: Sparse moderately sorted shell (<1.0 mm), rare sub-angular flint (<3.0 mm) and rare grog (<1.0 mm.). 1 sherd, 4 g.
Forms: No featured sherds. Date: ?middle Iron Age.

*SG3*: Soft, soapy fabric with moderate amounts of shell (<1 mm.) and grog (<3 mm.). 2 sherds, 21 g. Forms: No featured sherds.
Date: ?middle-late Bronze Age.

*SG5*: Soft, soapy fabric with moderate amounts of shell (<5 mm.) and grog (<3 mm.). 40 sherds, 224 g. Forms: No featured sherds. Date: ?middle-late Bronze Age.

*SP3*: Soft fabric with soapy texture. Sparse to moderate shell (0.25–3 mm.), sparse ferruginous clay pellets and sparse moderately sorted quartz (<1 mm.). Also rare grog inclusions (3 mm.) and sparse calcareous grits. Comparable to Farmoor fabric AB2.[28] 14 sherds, 147 g. Forms: ?Jars. Rims plain thickened or slightly outturned and flat. Ashville C0.[29] Date: early-middle Iron Age.

*SP4 and SP5*: Coarse, hard fabric with soapy texture. Sparse to moderate amounts of shell (<5 mm.) and sparse to moderate ferruginous clay pellets. 288 sherds, 2110 g. Forms: Jars with plain even sided rounded outsloping rims, plain thickened rims, tapered outsloping rims. Ashville ?B2.[30] Date: early-middle Iron Age.

*S*: General shell-tempered fabrics. 104 sherds, 60 g., plus 46 sherds (97 g.) from sieved samples.

Shell was the most common tempering agent identified, followed by sand. Shell-tempered, sand-tempered and mixed shell and sand-tempered fabrics accounted respectively for 31.4%, 27.4% and 30.3% of the total sherd count (excluding sieved material), and 33.1%, 19.1% and 30.4% respectively of the total weight. Two types of shell tempering were observed; one utilised coarse shell and the other utilised crushed shell, the latter frequently occurring as mixed fabrics with sand (fabrics AS3/SA3, AS4/SA4 and SA5). Coarse shell also occurred with clay pellets and/or grog. Sand tempering was also common with three main distinct sand-tempered fabrics identified (A2-A4).

Only 33 vessels were recorded by rim count. Of these, the majority were simple, slack-profiled jars with upright or everted rims characteristic of the middle Iron Age. There were only three exceptions to this, all from Trench 21. These were a shell-tempered rim sherd with notches on the outer edge from context 3006; a number of conjoining shell-tempered sherds from 3006 and 3061 from a vessel with a long curving neck, probably carinated, and a carinated shoulder sherd from a tripartite bowl/jar from context 3012. This sherd was the sole example of a distinctive fine sandy fabric (AM2). These forms are indicative of an early Iron Age date, and are paralleled in the phase I assemblage at Farmoor,[31] Ashville,[32] and numerous other sites in the region. Other forms paralleled at Ashville are the coarse ware jars (B0) and globular jars with short, upright or everted rims (B2).

[28] Lambrick, op. cit. note 23, p. 35.
[29] De Roche, op. cit. note 21, p. 44.
[30] Ibid. 43.
[31] Lambrick, op. cit. note 23, pp. 35-46.
[32] De Roche, op. cit. note 21, pp. 40-74.

*Ceramic Phases*

The condition of the assemblage, the relative dearth of featured sherds and the limited evidence from the site sequence (in which there were few significant stratigraphic relationships) enabled only limited phasing of the site. Although the assemblage was assigned dates from the middle Bronze Age to the middle Iron Age, these are based predominately on fabrics. There is insufficient evidence to suggest ceramic continuity within this date range. Three broad ceramic phases were identified:

*Middle Bronze Age (MBA)*: this is characterised by flint tempered fabrics F3 and F5. No featured sherds were recovered, however, but a comb-decorated loomweight dated to this period was found in association with pottery in 2011. A single small ?quartzite-tempered fragment might have been of late Bronze Age date.

*Early to Middle Iron Age (E-MIA)*: fabrics were difficult to assign to this period given the poor groups recovered. However three featured sherds are characteristic of the EIA, namely the decorated rim sherd, conjoining rim sherds from an angular tripartite vessel and the single instance of a fine sandy, micaceous fabric AM2 carinated shoulder sherd listed above. The coarse shell fabric SA5 can be paralleled by similar fabrics of this date within the region. The crushed shell and sand fabric AS3/SA3 also occurs in association with fabric SA5 and the EIA forms.

*Middle Iron Age (MIA)*: the majority of material has been assigned to this period. Vessel types such as slack-shouldered jars with simple rim forms, a lack of decorated sherds and the range of sandy fabrics are all typical characteristics of assemblages of this date in the Upper Thames Valley.

*Comparison with other sites*

Two flint-tempered fabrics (F3 and F5) assigned to the middle Bronze Age are comparable to fabrics certainly of middle Bronze Age date from sites such as Appleford Sidings (unpublished OA excavations, 1997-2000). Shell-tempered pottery in the Upper Thames Valley is generally assigned to the early Iron Age. At Farmoor and elsewhere, a progression from the use of shell to sand from the early Iron Age to the middle Iron Age has been recognised, though this is still difficult to quantify precisely.[33] There is a distinction between the use of coarse and crushed shell; coarse shell-tempered fabrics are likely to be early Iron Age in date, however, both types of shell tempering could occur during that period. At Blackbird Leys, the lack of diagnostic pieces means that coarse shell-tempered sherds were assigned to the early Iron Age on fabric criteria alone. The occurrence of sand and mixed-tempered fabrics together with middle Iron Age forms indicates that the majority of the assemblage dates to the middle Iron Age. All the fabrics and forms are paralleled within a 20 km. radius of the site, although the presence of glauconite in fabric A2 may indicate a source from the Upper and Lower Greensand deposits further to the south and west. The fabrics are similar in tradition to material found widely within the Thames Valley and comparable to assemblages at Whitehouse Rd., Farmoor, Ashville, Appleford, Yarnton and Mount Farm, and to a lesser extent at Watkins Farm, Gravelly Guy and Mingies Ditch.[34]

The majority of the featured sherds at Blackbird Leys are also easily paralleled at the above-mentioned sites. The simple barrel and globular jar forms were characteristic of middle Iron Age assemblages in the Upper Thames Valley.[35] Similarly, the dearth of decorated sherds for the middle Iron Age component falls within this pattern. A number of forms were comparable to those at Farmoor and Ashville, and fabrics were paralleled at Farmoor and Whitehouse Road. In particular, the Blackbird Leys assemblage shares many characteristics with the Whitehouse Road material, as might be expected given their relative proximity. Both have a similar broad range of sandy, shelly and ferruginous fabrics, with slack-profiled or globular jars with simple rim forms. The Whitehouse Road assemblage lacks the early Iron Age angular component, however, this was found both at Ashville and Farmoor alongside the larger, characteristic middle Iron Age groups.

[33] G. Lambrick, 'Pitfalls and Possibilities in Iron Age Pottery Studies – Experiences in the Upper Thames Valley', in B. Cunliffe and D. Miles (eds.), *Aspects of the Iron Age in Central Southern Britain* (Oxf. Univ. Comm. for Archaeol. Monograph 2, 1984), 162-77.

[34] Whitehouse Road: Timby, op. cit. note 25; Farmoor: Lambrick, op. cit. note 23; Ashville: De Roche, op. cit. note 21; Watkins Farm: 'The Iron Age pottery', in T.G. Allen, *An Iron Age and Romano-British Settlement at Watkins Farm, Northmoor, Oxon.* (Thames Valley Landscapes: The Windrush Valley, vol. 1, 1990), 32-46; Mingies Ditch: D. Wilson, 'Iron Age Pottery', in T.G. Allen and M.A. Robinson, *The Prehistoric Landscape and Iron Age Enclosed Settlement at Mingies Ditch, Hardwick-with-Yelford, Oxon.* (Thames Valley Landscapes: The Windrush Valley, vol. 2), 70-5; Appleford: C.D. De Roche and G. Lambrick, 'The Iron Age Pottery', in J. Hinchliffe and R. Thomas, 'Archaeological Investigations at Appleford', *Oxoniensia*, xlv (1980), 45-59. Gravelly Guy, Yarnton and Mount Farm are all unpublished.

[35] T.G. Allen, op. cit. note 34 (Watkins Farm), 38.

*Discussion*

The middle Bronze Age pottery was found in pits 2024, 2147, 2028, 2101 and 2123. These formed a group in the eastern part of Trench 20. A small amount of middle Bronze Age pottery was re-deposited in ditches 2183 and 2188. There was no pottery dated to the late Bronze Age. The distinction between the early-middle Iron Age and the middle Iron Age phases was problematic due to the small group sizes, the poor condition of the sherds and the relative dearth of featured sherds. As mentioned above, there was a general trend away from shell-tempered fabrics, which dominated in the early Iron Age, toward sand and other tempers during the middle Iron Age. Shell-tempered and sand-tempered fabrics were associated in most feature fills at Blackbird Leys with some confidence (based on the stratigraphic relationship with linear ditch 3027 and the occurrence of early Iron Age forms). The remainder of the features can only be assigned a broad middle Iron Age date. There is no ceramic evidence in this part of Blackbird Leys for continued occupation into the late Iron Age, though very small quantities of late Iron Age/early Roman pottery occurred in Zones D and E to the west.

*Catalogue of illustrated sherds* (Fig. 5)

*Early Iron Age Pottery*
1) Structure 3010 Contexts 3006/3061 conjoining rim sherds of tripartite vessel. Fabric SA3.
2) Structure 3010 Context 3006 expanded rim sherd with fingertip impressions on outer edge. Fabric SP3.
3) Structure 3010 Context 3012 Outsloping rim of ?jar. Fabric SA3.
4) Structure 3010 Context 3012 Carinated shoulder sherd of angular vessel. Fabric AM2.

*Early-Middle Iron Age pottery*
5) Structure 2183/2203 Context 2017 Plain angled rim sherd. Fabric SA3.
6) Structure 2183/2203 Context 2017 Outsloping rim sherd. Fabric SP4.
7) Structure 2183/2203 Context 2173 Plain even sided slightly outsloping rim. Fabric SA3.

*Middle Iron Age Pottery*
8) Evaluation context 402. Shouldered jar with short slightly everted rim. Fabric SA5.
9) Evaluation contexts 402 and 409. Slack profiled jar with slightly everted rim. Fabric PA3.
10) Structure 2188 Context 2009 Plain even sided slightly everted rim sherd. Fabric AS3.
11) Structure 2167 Context 2113 Externally thickened rim sherd. Fabric SP3.
12) Structure 2167 Context 2153 Plain even sided upright rim sherd. Fabric SP3.
13) Structure 2081 Context 2013 Complete profile of globular jar with slightly beaded rim. Faint traces of burnishing on the external surface. Fabric AN3.

## THE DECORATED CYLINDRICAL LOOMWEIGHT by ALISTAIR BARCLAY

The loomweight (Fig. 6), from context 2101, is semi-complete but in fragmentary condition. It was made from fired clay and decorated with round-toothed comb impressions. Cylindrical loomweights have a mid-late Bronze Age date range. The fact that this example has round-toothed comb impressions suggests a middle rather than a late Bronze Age date as this decorative technique also occurs on some middle Bronze Age Deverel-Rimbury style pottery. Cylindrical loomweights are quite rare in general and it is highly likely that this comb-decorated example is a unique find.

## ANIMAL BONE by NICKY SCOTT

A total of 1,016 bone fragments were recovered and assessed rapidly (Table 1). Only 9.4% of the bone fragments were identified to species and anatomical part. This low identification percentage was due largely to the highly fragmentary nature of the bone recovered, as a result of which ribs and vertebrae were not identified and which also prevented detailed examination of butchery marks. Despite the fragmentary nature of the bone, the general surface condition was reasonable, although material from certain contexts showed heavy encrustation with a cement-like gravel mix. There was some evidence of burning, notably in context 3047.

The assessment shows cattle as the predominant species represented, although sheep/goat bones also figure significantly. The character of the material did not justify further analysis.

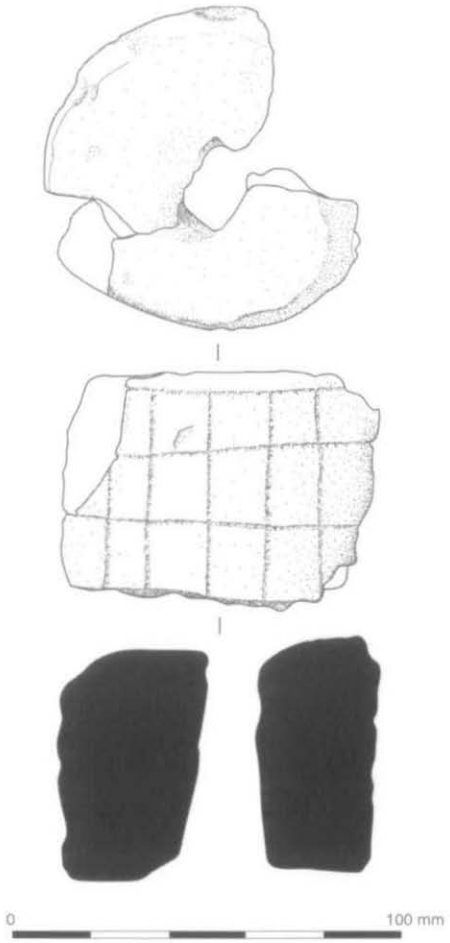


Fig. 6. Zone A decorated Bronze Age loomweight.

TABLE 1. QUANTIFICATION OF ANIMAL BONES

| *Element* | *Species* | | | |
|---|---|---|---|---|
| | *Sheep/goat* | *Cattle* | *Pig* | *Horse* |
| Skull | 2 | 1 | | |
| Mandible | 1 | 2 | 3 | |
| Loose tooth | 19 | 31 | 7 | 2 |
| Scapula | 5 | | | |
| Humerus | | 2 | | |
| Radius | | 2 | | |
| Ulna | | 1 | | |
| Metacarpal | 1 | 3 | | 2 |
| Femur | 2 | 1 | | |
| Tibia | 2 | | | |
| Metatarsal | 2 | 5 | | 1 |
| Calcaneum | 1 | | | |
| Astragalus | | 1 | | |
| *Total* | *34* | *50* | *10* | *5* |

## CHARRED PLANTS AND ENVIRONMENTAL REMAINS by GILL CAMPBELL

A number of soil samples were taken for the recovery of charred plant remains and other economic and environmental indicators. On examination, the fine residue from many of these samples was found to be contaminated with material probably introduced by recent agricultural activity. The floated residues from 12 samples were assessed, but all contained very little material and none merited detailed work. The middle Bronze Age pit (2125) produced significant oak charcoal. Early-middle Bronze Age features produced a limited amount of wheat grain and a possible barley grain. Middle Iron Age features produced a single hazelnut fragment, occasional wheat grains and a possible oat grain, although whether cultivated or wild oat was present cannot be determined. The middle Iron Age penannular ditch produced an uncharred fig pip which was likely to have been intrusive.

## GENERAL DISCUSSION, ZONE A

The majority of the features revealed were discrete, and the interpretation of any relationships was hampered by problematic stripping and truncation by ridge and furrow, later ploughing and land drains. The phasing of the site was based on ceramic evidence. The chronology relied predominately on fabric types due to a lack of diagnostic sherds and the low mean sherd weight (4.2-5.6 g.). The dating of the features is therefore broad. The earliest occupation on the site was middle Bronze Age, represented by a group of pits in Trench 20. Twelve other pits, the largest 1.6 m. in diameter and the deepest 0.23 m. deep, were located within a 10-12 m. radius of the Bronze Age pits. A Bronze Age date is possible for these features, but is based only on their immediate spatial proximity. Amongst the Bronze Age artefacts from the site, a fragment of decorated cylindrical loomweight (Fig. 6) is noteworthy.

The Iron Age pottery ranges in date from the early-middle Iron Age. All linear features contained pottery of these dates. Most of the ditches and gullies that ran through the site appear to have respected each other spatially, and probably represent boundary ditches and/or field systems. The most substantial of these, in Trench 20, was structure 2188, continuing into Trench 21 as 3048 and possibly 3014. This was aligned NE.-SW. and appears to have been associated with NW.-SE. narrower gully structures 2091 (Trench 20) and 3027 (Trench 21). Six to eight m. to the W. of structure 2188/3048, a segmented ditch 2203/2183 ran on a N.-S. alignment in Trench 20, changing alignment to NE.-SW. toward the N. of the trench. It was seen in Trench 21 as structure 3010. The relationship of this feature with the other linear features is unclear. In Trench 21 it cut gully 3027, but in Trench 20 gully 2091 stopped short of it. At the E. end of Trench 20 was a further narrow gully (2166) aligned NE.-SW. and running parallel to ditch 2188. The depth of the features was not substantial and may suggest that these were permeable boundaries designed to assist in landscape management and the definition of certain areas, rather than acting as significant barriers.

The most substantial features were the concentric penannular ditches. The pottery evidence suggests that they were contemporaneous, as does their spatial layout. Both had SE.-facing entrances and the inner ditch had a diameter of 18-19 m. No features survived in the interior and it can only be assumed that they were once present; the space could have accommodated a roundhouse quite comfortably. There was no evidence of re-cutting in these ditches.

Little evidence of the subsistence and economic base of the settlement was recovered. The animal bone was extremely fragmentary and only 9.4% of the 1016 fragments could be identified to species (Table 1). Cattle were most prominent on the site, although sheep and goat were also represented. Soil samples were extensively contaminated with modern material, though charred plant remains were found in low concentrations. Pit 2127 in the extreme east of Trench 20 contained abundant oak charcoal, the Bronze Age pits produced a small amount of wheat grain and a possible barley grain. The middle Iron Age features produced only a single hazelnut fragment, occasional wheat grains and a possible oat grain.

## THE EXCAVATIONS: ZONE C (Fig. 7)

Zone C covered an area of *c.* 0.5 ha., centred *c.* SP 5442 0217. It was partly examined in evaluation trenching in 1995 by OA and Tempus Reparatum. This evaluation revealed ditches belonging to a possible enclosure or enclosures, perhaps associated with a trackway (in OA Trench 6), which produced Roman pottery. The character of the latter suggested an association with pottery production and the favoured interpretative model for this area before further excavation commenced saw it as part of a dispersed pottery workshop complex within a system of enclosures. The Tempus Reparatum Trench 8 suggested a concentration of features toward the centre of the Zone. Tempus's Trench 12, at the western extremity of Zone C, produced very little pottery, suggesting that it lay near the margin of this area of activity.

Zone C was stripped of topsoil by earthmoving contractors using a tracked bulldozer before excavation commenced. This was part of an operation to remove topsoil from the whole development area. The clearance technique, involving the use of inappropriate machinery in poor weather conditions, resulted in a

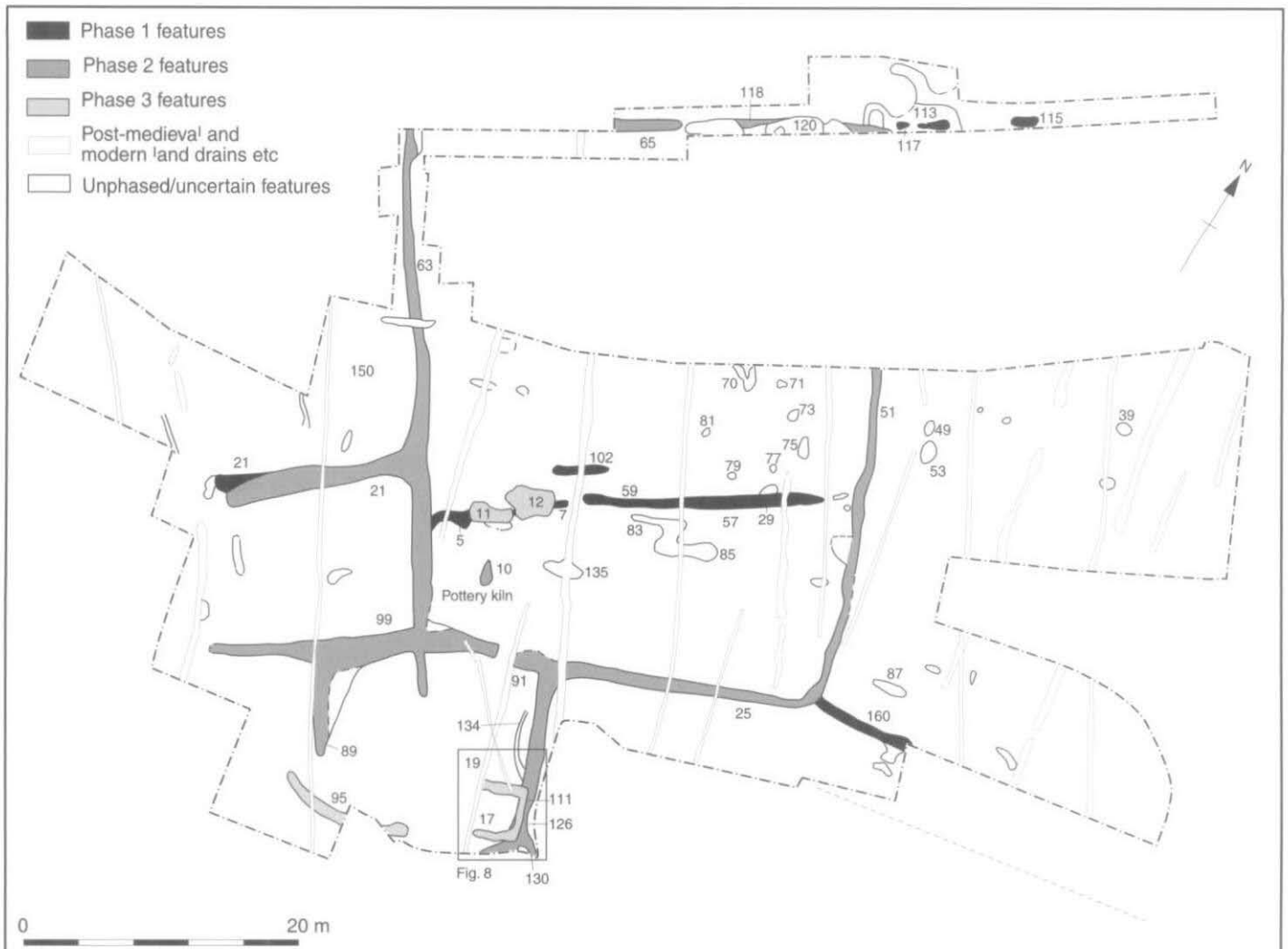


Fig. 7. Zone C general phase plan.

surface in which confident identification of archaeological features was impossible. Superficial inspection showed that a few potential archaeological features were visible, including a possible pottery kiln, but the stripped surface did not allow for the assessment of the character, density and distribution of features. Re-cleaning of the surface of the site was therefore necessary.

One consequence of the general topsoil stripping was to render any archaeological features or deposits within Zone C vulnerable to damage by movements of contractors' machinery etc. across them, with little indication that features within the footprint of particular proposed buildings would be at significantly greater risk than those outside. Therefore, no attempt was made to target excavation at specific proposed building locations within Zone C.

Approximately 60% of Zone C was cleared a second time using a 360° excavator with a toothless bucket. The resulting surfaces were planned and further hand cleaning and excavation carried out as far as possible. The excavation took place over a period of 10 days, during which time progress was hampered periodically by poor weather conditions. Even without the problems caused by inappropriate machining, it is clear that archaeological features within this area were heavily truncated by post-medieval ploughing and were generally poorly preserved.

## THE SITE SEQUENCE

No prehistoric features were identified within this area. The main Roman features, dating from the 2nd-3rd centuries onward on the basis of the ceramic evidence, were:

- *Phase 1*: A possible, fragmentary ditch system, perhaps dating to the 2nd or 3rd century AD.
- *Phase 2*: An enclosure ditch system dating to the 3rd-4th centuries, although this was only partly revealed within the limits of excavation. The remains of a probable pottery kiln base were tentatively assigned to this phase.
- *Phase 3*: Disparate later Roman features, including two large pits and a U-shaped gully cutting a section of the Roman ditch complex. A length of a crescent-shaped ditch, also containing abundant pottery, may have been associated with this feature.

Undated and post-medieval/modern features were also located. On the plan of the area (Fig. 7), none of the post-medieval features and selected undated features are numbered. Only cut feature numbers are given.

### *Roman features*

The principal archaeological features consisted of linear ditches, probably belonging to two phases of a Roman ditch system. Most of the ditches contained fills of sandy or silty clay, generally grey or brownish-grey in colour. Distinction between ditch fills, both in plan and section, was therefore difficult. The upper fills of a few ditches were distinctively dark grey, with a high charcoal component.

*The ditch/enclosure system*: The focus of the ditch system appeared to be a sub-rectangular enclosure, aligned roughly N.-S. and E.-W., with maximum dimensions of *c.* 35 m. E.-W. and 40 m. N.-S. Further ditches ran from this enclosure in various directions.

The W. side of the enclosure was formed by ditch 63. The NW. corner lay just beyond the N. limit of the excavated area, but at this point ditch 63 presumably met the E.-W. aligned ditch 65, located further to the E., which formed the N. side of the enclosure. The line of ditch 65 continued further E. as ditches 118 and 120. These may have been continuous with 65, as the apparent break between 65 and 118 corresponded with the projected alignment of a field drain which may have obscured the earlier features. Ditches 118 and 120 were partly obscured by deposits of yellow clay that may be of recent date. The E. end of ditch 120 probably marked the NE. corner of the enclosure (the corner itself lay in a part of the site which was not re-machined), the E. side of which was formed by ditch 51. Ditch 51 was continuous with ditch 25 which formed most of the S. side of the enclosure, the junction between the two forming a rounded SE. corner. Ditch 25 terminated *c.* 6 m. short of the SW. corner of the enclosure. There was a gap of just over 1 m., presumably an entrance, between this terminus and the end of ditch 99, which formed the remainder of the S. side of the enclosure and then projected 15 m. W. beyond the SW. corner.

The area S. of the SW. corner of the enclosure may have been part of an extension of the enclosure scheme, albeit incomplete. A N.-S. aligned ditch (89) ran *c.* 6.50 m. S. from ditch 99 starting from a point 6 m. W. of the SW. corner of the main enclosure. A slight continuation of the W. enclosure ditch (63) also extended 3 m. S. of the same corner, and further E. a more substantial ditch or series of ditches (91, 126) extended 12 m. S. of the S. enclosure ditch (25) before forking irregularly at the extreme S. margin of the excavation and running out of the site.

North of the SW. corner of the main enclosure, a roughly E.-W. aligned ditch (21) of at least two phases projected *c.* 14 m. from the W. enclosure ditch. This was roughly parallel to and about 10-11 m. distant from

the W. continuation of ditch 99 to the S. Ditches 21 and 99 terminated approximately the same distance from the W. side of the main enclosure and might have formed part of a small subsidiary enclosure, however, without a substantial boundary on its W. side. A 2.80 m. length of an unnumbered ditch-like feature lay between the two termini at an appropriate distance from the W. ditch of the main enclosure. This may have been a remnant of the putative W. side of the subsidiary enclosure, however, this remains uncertain.

Further elements of ditches were observed to the E. of and within the main enclosure. Short, approximately linear features 117, 113 and 115 may have been part of an E. continuation of the N. ditch of the main enclosure at least 10.50 m. beyond the NE. corner, but these features were not excavated and their interpretation as ditches is not certain. A comparable ditch (160) extended at least 7.50 m. E. of the SE. corner of the main enclosure to the edge of the excavated area at this point. The fill of this feature (161) appears to have been cut by the main enclosure ditch (25) at the point of junction, but this relationship is not entirely clear.

The main enclosure was divided into two unequal parts by another roughly E.-W. ditch alignment, like ditch 160, earlier than the main enclosure ditches themselves. The component cuts of this ditch were 5, 7, 16, 29, 57 and 67. This ditch was of uniform profile with 45° sloping sides and a concave base. It was up to *c.* 1.10 m. wide, but more commonly between 0.80 and 0.90 m. wide, and had a maximum surviving depth of 0.30 m., becoming gradually shallower and less distinct toward the E. This ditch was sectioned at its E. end where it met the E. main enclosure ditch 51. It appeared to have been cut by ditch 51, but distinction between the fills of the two ditches was poor due to localised flooding.

Ten metres E. of the W. side of the main enclosure there was a small gap, about 1 m. wide, between ditch segments 7 and 59. The suggestion that this was an entrance was reinforced by the presence of an isolated 4 m. length of ditch (102) sited just N. of the gap, in the manner of a *titulum*.

*The ditch system phasing* (Fig. 7): Phasing of the ditch sequence is difficult due to the limited extent of excavation. Relationships observed principally in plan suggested that the ditch subdividing the enclosure, and ditch 160 running from its SE. corner, were earlier than the enclosure ditches. The possible ditch alignment running E. from the NE. corner of the main enclosure should perhaps also be seen with these features since it was comparable to ditch 160 in terms of its spatial relationship with the enclosure. These elements make little sense if divorced from the main system of enclosure and other ditches. They did not form a coherent pattern separately. If they had formed part of an earlier system of enclosures, most of the components of this system either did not survive to be identified in the excavation or, more likely, were replaced directly by elements of the main enclosure system. While many of the Phase 1 ditches appear to have formed an internal boundary within the main enclosure, the recorded relationships indicate that this was an earlier rather than a contemporary feature. It is unclear whether it retained any significance during the life of the main enclosure; the location of two large pits on the line of the earlier ditch may indicate that a hollow was still evident at the time the pits were dug.

The likely extant elements of Phase 1 were therefore features 5, 7, 16, 29, 57, 67, 101, 113, 115, 117, 160 and perhaps also the earlier version of ditch 21, represented by fill 23. Although sectioned at several points, only one fragment of pottery was recovered from ditch fills of this phase. This was not closely datable, and was assigned to the 2nd century or later.

The Phase 2 ditch complex consisted of feature numbers 21, 25, 51, 63, 89, 91, 99, 126, 130 and 65, 118 and 120, comprising the main enclosure with additional elements. Where sectioned, these ditches were similar in profile to the Phase 1 ditches but they were generally deeper, at up to 0.52 m. deep. The area covered by the Phase 2 ditches may have been more extensive than that occupied by the Phase 1 features, but even this is uncertain.

*Pits within the enclosure*: Two large pits (11 and 12) lay roughly in the centre of the site. Aligned approximately E.-W., both pits cut fills of the underlying Phase 1 ditch (6, 8 and 15). These features (2.70 x 1.00 x 0.30 m. and 2.00+ x 1.60 x 0.30 m. respectively), initially identified as possible kiln locations on the basis of their charcoal-rich fills with much pottery within them, were quarter-sectioned to investigate their nature. The silty clay bottom fills of both pits (14 and 136) contained little charcoal (2% of total make-up) and no pottery, suggesting an initial silting of the features. No sign of *in situ* kiln structure was found, although both upper fills contained moderate amounts of fired clay (825 g. in context 13 and 895 g. in context 9). This would suggest that these features were located in the vicinity of nearby kilns whose debris they contain. This is supported by the evidence of the charcoal within their upper fills and the presence of much pottery, especially at the surface of context 9. The pottery recovered from the upper fills (13 and 9) dated from the late 3rd century onward.

*Pottery kiln*: Immediately to the S. of the two pits, the base of a probable pottery kiln was revealed by the initial re-machining. This feature (10) consisted of a heavily burnt area of clay, with distinctive areas of coloration and charcoal flecking within it (contexts 142-144). The deposit, aligned roughly N.-S., occurred patchily over an area 2.50 x 0.90 m. and was at most 0.03 m. thick. It included an area of very firm clay that may possibly indicate the position of the base of a pedestal structure. However, the shallowness of the surviving structure and its partial truncation by machining precluded further meaningful excavation.

*U-shaped gully south of the main enclosure* (Fig. 8): In the southern part of the excavated area a U-shaped arrangement of gullies (17, 19, 111, 124 and 137), like pits 11 and 12 further N., was conspicuous because its dark upper fill contained abundant pottery on the cleaned surface.

This feature cut a N.-S. aligned projection from the Phase 2 enclosure ditch complex (92, 125 and 132). It consisted of two E.-W. running linear cuts 2.50-2.90 m. apart, with concave sides and bases, *c.* 3.30 m. in length and 0.20 m. deep, becoming slightly deeper toward their E. ends where they were linked by a N.-S. running continuation of the cut. The N.-S. arm cut fills of the enclosure ditch complex, however, distinguishing between its fills and those of the enclosure ditch complex here was extremely difficult, especially at the NE. corner of the feature.

Several sections were taken across this feature, but no structure was revealed and there were no indications of *in situ* burning. The fills (18, 20, 110, 140) were mostly of silty clay like those of other cut features. Fills 18 and 110 contained very small amounts of fired clay and all except fill 140 incorporated small limestone fragments. The function of this feature is uncertain. Possible interpretations of the gullies include:

- That they were flues for a possible kiln or (more likely) a drier with the principal structural elements above the present archaeological horizon. However a lack of burning/scorching in this area argues against this.
- That they were cut to form a drain around three sides of a well-defined feature or space which required being kept dry. This would have been accessed from the W.
- That they simply formed part of a ditch complex, perhaps together with a crescent-shaped ditch (95) to the SW. (see below), both features having similar charcoal-flecked and pottery rich fills.

*Crescent-shaped ditch south of the main enclosure*: A crescent-shaped ditch (95) at the extreme S. of the excavated area may have been associated with the U-shaped feature mentioned above (Fig. 8), on the basis of its alignment and the similar nature of its dark upper fill with abundant pottery. A 10 m. length of this ditch was exposed. It had a maximum width of 0.90 m. and in section was *c.* 0.30 m. deep, flat-bottomed and had steeply sloping sides. The lower fill of the ditch (141) contained only a few pottery sherds dated to the 2nd century or later, while the upper fill (96) contained pottery dating to the 4th century, including one almost complete vessel. It is possible that the two fills, with the earlier located only on the N. side of the feature, indicate that the ditch was re-cut, but this is not certain.

### *Undated features*

*Possible roundhouse*: A group of features situated N. of the E. end of the Phase 1 E.-W. ditch dividing the main enclosure appeared as possible postholes. These features (71, 73, 75, 77, 79 and 81) formed a rough circle 7-8 m. across and it is possible that they were the bases of postholes for a roundhouse. A possible gully (70) just N. of these features may have been associated with them. On examination, the possible postholes were of shallow and irregular cut. Their interpretation remains uncertain.

*Other features within the main enclosure*: Three possible elongated features, all appearing as soil discolorations on a roughly E.-W. alignment, lay within the S. half of the main enclosure (83, 85, 135). None of these was examined. Their function, if any, is unknown. They may have been short lengths of ditch or perhaps variations in the natural subsoil.

*Pits east of main enclosure*: Scattered possible features were planned after the re-machining of the site but were not examined further. These included three oval features, 49 and 53 *c.* 3 m. E. of the E. side of the main enclosure, and 39 about 13 m. further E. South of these an elongated feature *c.* 2.50 m. long and 0.75 m. wide (87) lay 2.50 m. N. of the line of ditch 160 and parallel to it. It is possible that this was a segment of a further ditch, but like the similar features within the enclosure, it is not certain that any of these were cut features.

### *Modern features*

An irregular sided, NNW.-SSE. aligned linear cut (150) marked the continuation through the site of a modern hedge-line, extant to the S. Its dark brown heavily root-disturbed fill was not excavated.

A further short length of E.-W. aligned ditch (not numbered) cut the W. side of the main enclosure toward its NW. corner. The fill of this feature was heavily disturbed by roots and was very similar to the fill of 150. It, too, may indicate the location of a short length of hedge.

Two systems of modern field drains on slightly different alignments were encountered. One group ran approximately N.-S., while the second was on a NNW.-SSE. alignment, parallel to that of the modern hedge-line. The field drains were of variable depth. In some cases, pipes were visible at the machined level of the site. The sections of others were excavated quickly to prove the function of the narrow linear features as land drains.

The W. end of the excavated area was heavily disturbed by machine tracking, but no obvious features, except land drains, were distinguished within this area.

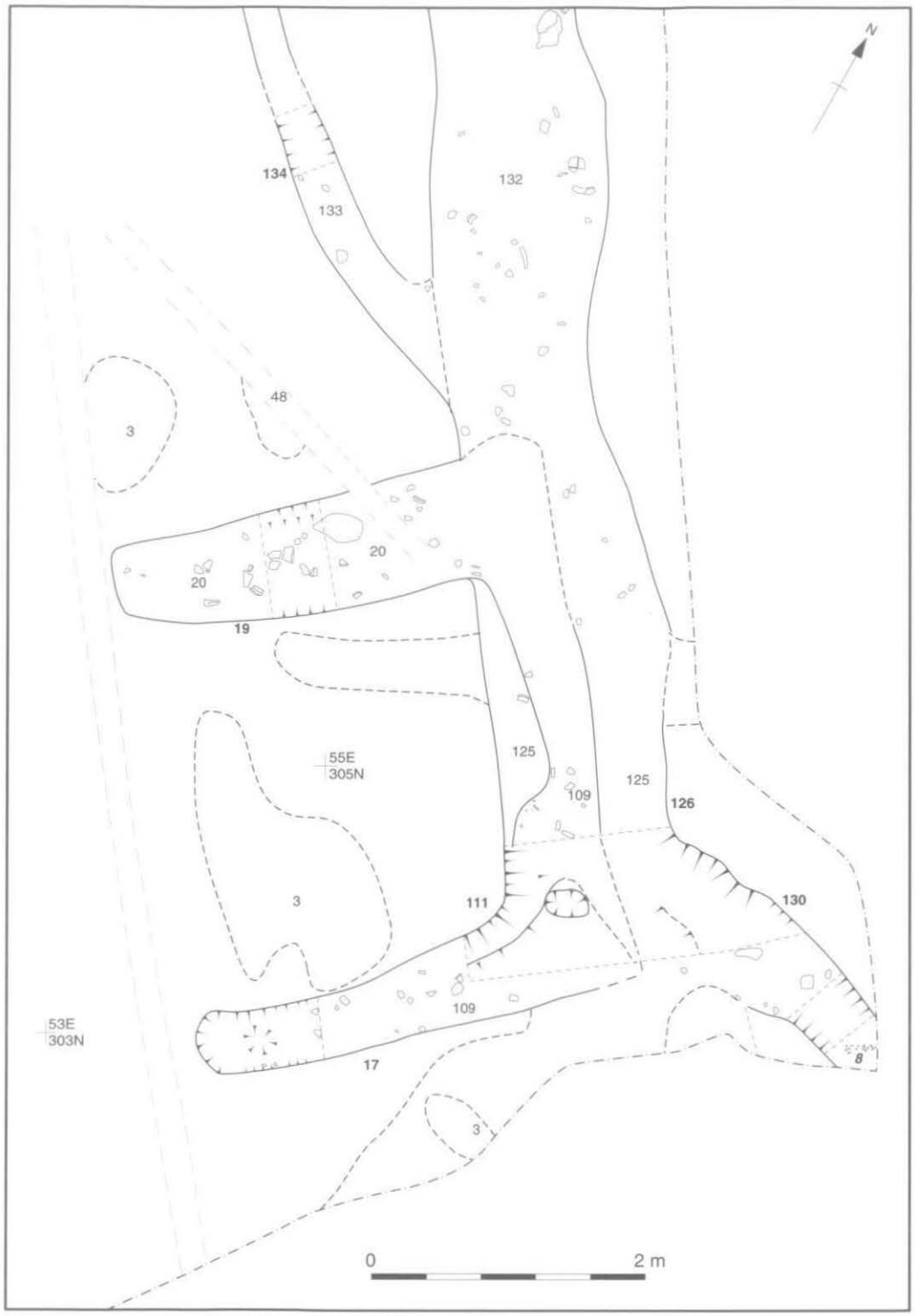


Fig. 8. Zone C detailed plan of late Roman U-shaped gully.

## THE EXCAVATIONS: ZONE D (Fig. 9)

The topsoil in Zone D was originally stripped by machine at about the same time as Zone E, where excavation was then concentrated. As a consequence of drying of the soil in hot weather and inadvertent disturbance by building contractors' machinery, many features were obscured before excavation could commence. Seven areas across the zone were therefore isolated and re-machined in order to remove the dry upper soil crust and to reveal the archaeological features. These areas, subsequently labelled D1-D7, related directly to pre-determined house footing locations. In addition to the above, further machining took place around areas D1, D2, D3 and D4 in order to follow ditch lines and confirm the presence or absence of archaeological features.

### SUMMARY OF SITE SEQUENCE

#### *Area D4* (Figs. 10 and 12)

D4 was the most northerly area of excavation in zone D. Stripping revealed a kiln structure (Fig. 12), associated gullies and several pits.

Kiln 558 (Fig. 12) was aligned roughly NW.-SE. The wall of the firing chamber (558) encompassed an area 1.1 m. wide and 1.6 m. long. It was constructed of fired clay, varying in colour from a light creamy brown to a dark red. The base and parts of the NW. wall were seen as unfired red clay. The kiln had a well-preserved tongue pedestal, a light creamy brown colour, with a blue-grey colouring in places. The SE. end of the chamber appeared to show traces of a collapsed flue-like structure at the point connecting the chamber and the stokehole. The chamber was backfilled with very dark brownish grey clayey silt (551) with charcoal flecks, occasional clumps of greenish silt and 2.5 kg. of fragmented kiln debris. Pottery was noted on site (but did not survive). The total amount of pottery and kiln debris accounted for 15-20% of the fill.

The stokehole (557), with a base of grey clay, lay at the SE. end of the kiln with dimensions of *c.* 1.2 m. x 0.8 m. x 0.13 m. It was lower than the firing chamber and its base sloped up to the chamber. It was approximately oval in shape, but its sides and base were uneven. The stokehole contained two fills, the lower one (553) was a compacted dark greyish brown sandy silt, 0.06 m. thick, with areas of dark red and brownish yellow flecks, 28 sherds of mid-late 3rd-century pottery and 359 g. of kiln debris. This was overlain in the centre of the stokehole by a second fill (552), a compact dark grey to blue-black silty clay, 0.14 m. thick, with charcoal fragments, 17 sherds of mid-late 3rd-century pottery and 606 g. of kiln debris.

A NE.-SW. orientated gully (560), with concave sides and a sloping base, ran from the S. side of the stokehole. It was filled with 559, a compacted dark to light grey silty clay with charcoal fragments (increasing in quantity toward the S. end), 13 sherds of 3rd-century pottery and 357 g. of kiln debris. The fill was very similar to that in the stokehole and may have been contemporary. The gully was cut by an E.-W. field drain (561), beyond which it appeared to continue as feature 562 until it was cut by a pit (585, 584, 582). The total gully dimensions were *c.* 2 x 0.4 x 0.1 m.

The gully and stokehole fills were covered by a localised trampled layer (554), a compacted orange-brown to dark brown silty clay. Eight sherds of ?mid 4th-century pottery and 1.1 kg. of kiln debris were recorded from the layer, which extended for *c.* 1.1 x 0.53 x 0.2 m., and was cut by field drain 561. It had an unknown relationship with pit 569. This pit, located immediately N. of the kiln structure, was circular in plan, 0.5 m. across and only 0.05 m. deep. It was filled with a compact dark grey to black silty clay (568) with flecks of charcoal, one sherd of ?3rd-century pottery and 20 g. of kiln debris.

Pit 585/584/582, located SW. of the kiln, was irregular in plan and may have contained more than one pit cut. Three sections were excavated through the feature, two of which joined to present a complete N.-S. section which was 3.3 m. in length. The sides of the pit were moderate to gently sloping, of variable profile, with a gradual break of slope to an irregular base. Two fills were seen in the section of pit 584/585. The lower (581/579/590) was a brown-grey silty clay, 0.3 m. thick, with 641 sherds (15.5 kg.) of 4th-century pottery and 9.4 kg. of kiln debris. A further deposit of compact orange-brown clay, up to 0.2 m. thick (580), was also located at the base of the pit in certain areas. This was not recorded in section, but would appear to have been part of fill (581/579/590). Section 582 contained a single fill (575/576) which was thought to be the same as fill 580 and varied in thickness from 0.16-0.4 m. It contained 333 sherds (6.1 kg.) of 4th-century pottery and 1.9 kg. of kiln debris. A further fill (578), up to 0.2 m. thick, was observed in 584 and 585. This was a firm black silty clay, containing 67 sherds of 4th-century pottery and 4 kg. of kiln debris. In total this pit contained 1075 sherds (23.8 kg.) of 4th-century pottery and 16 kg. of kiln debris.

The large pit(s) had an unconfirmed relationship with a smaller pit (583) immediately to the S. Again, this pit was irregular in plan and was orientated N.-S. An area of 1.7 m. x 1.1 m. x 0.3 m. was excavated. The sides were irregular and moderately sloping, the break of slope to the base was sharp, and the base sloped down somewhat to the E. The pit contained a single fill (577), a firm to compact black silty clay to clay with 299 sherds (7.1 kg.) of 4th-century pottery and 6.36 kg. of kiln debris. Cutting into this pit, but probably roughly contemporary with it, was a NE.-SW. aligned gully (586). This gully had moderately sloping sides and was *c.* 0.5 m. wide and 0.4 m. deep. It was filled with 589, a firm dark brown sandy silt with charcoal fragments,

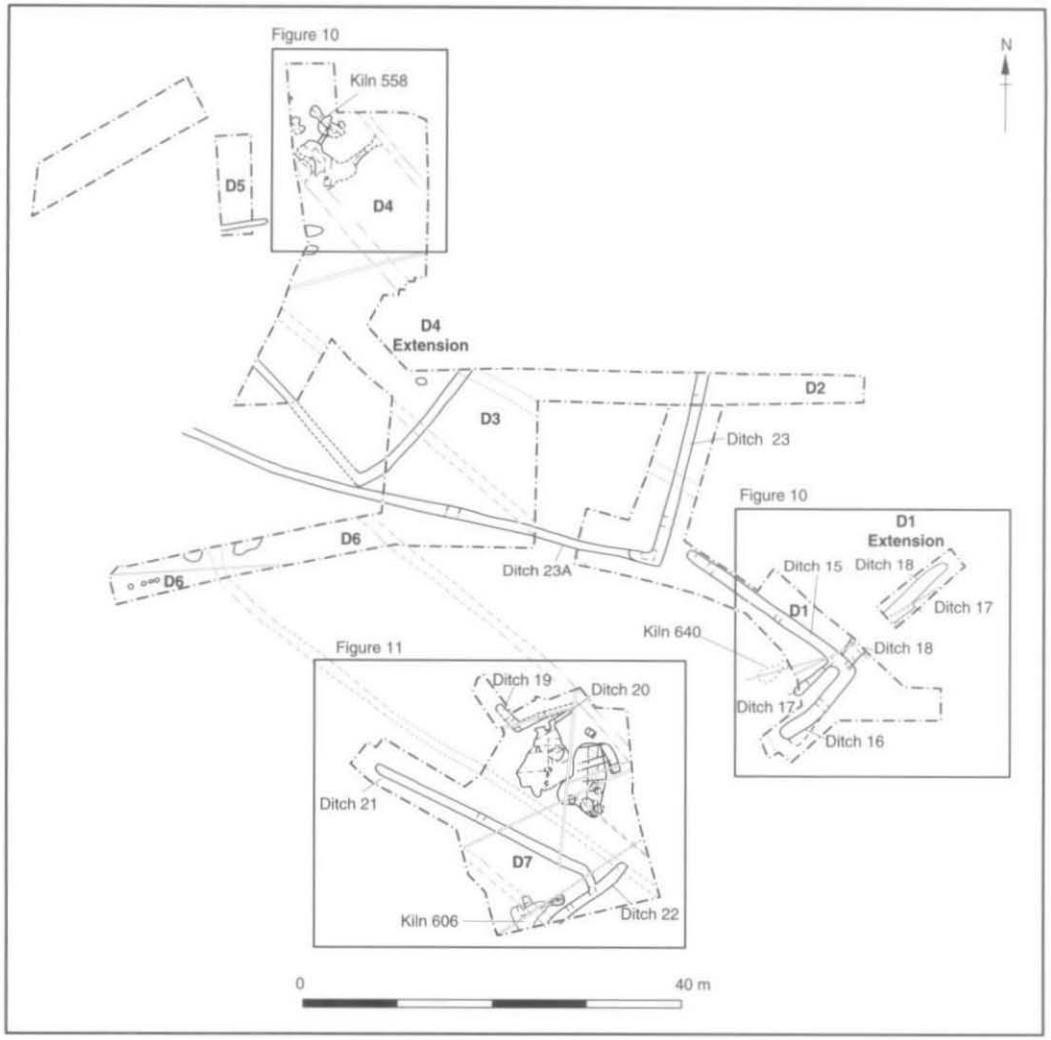


Fig. 9. Zone D overall plan.

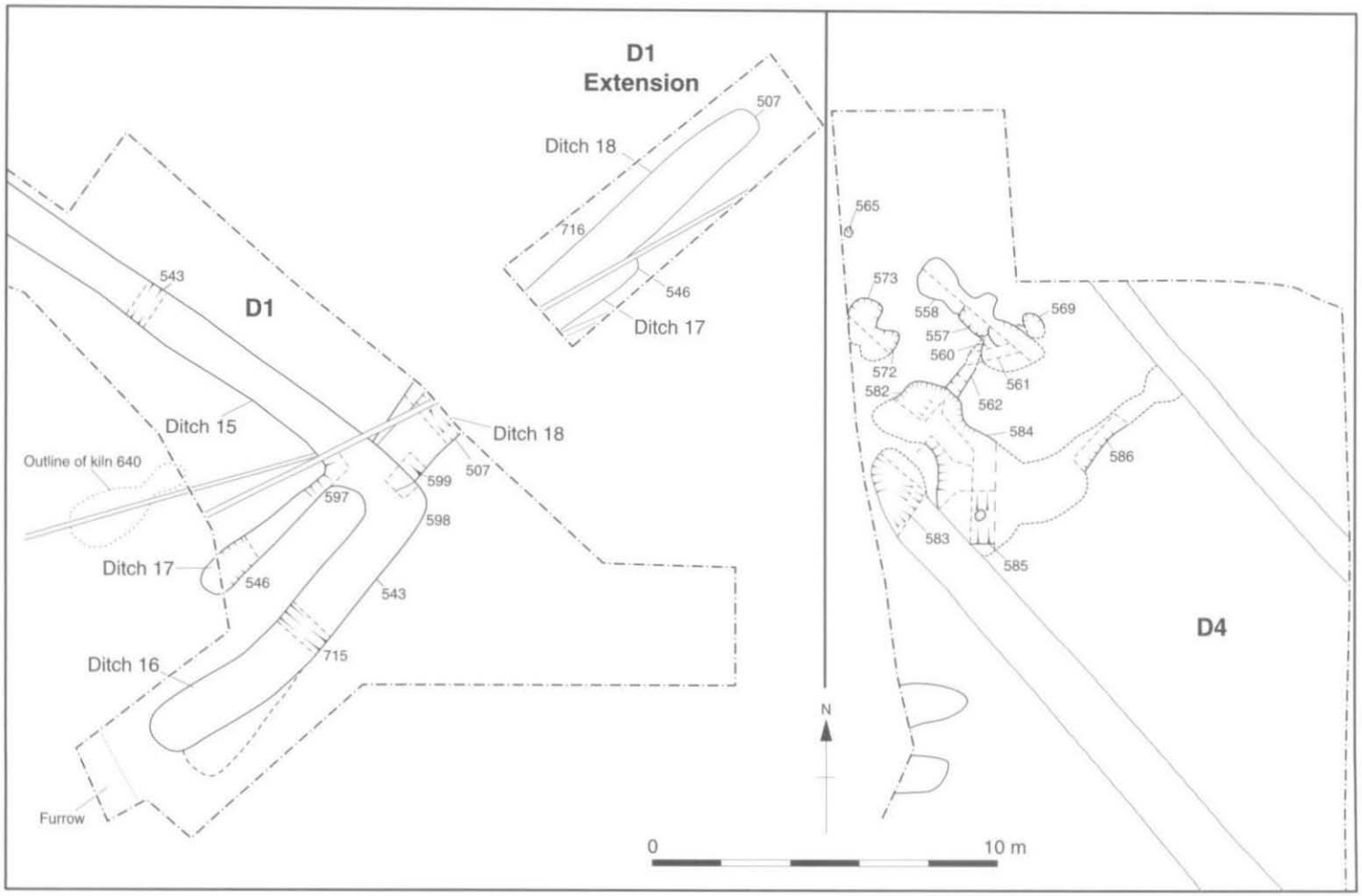


Fig. 10. Zone D plans of Areas D1 and D4.

39 sherds of 4th-century pottery and 1.9 kg. of kiln debris. 586 and the related pits were cut to NE. and SW. by post-medieval linear features.

The area also contained several isolated features. At the NW. edge of the trench was a possible truncated posthole or pit (565), 0.3 m. across and 0.05 m. deep, filled with 564, a firm dark reddish brown silt. At the W. edge of the trench were two shallow oval intercutting pits, (572 and 573). The former was 0.8 m. across x 0.15 m. deep and the latter 1.1 x 0.9 x 0.14 m. deep. Both had moderate to gently rounded sides and bases and were filled with compact dark grey silty clay with charcoal flecks. Pit 572 contained 33 sherds of early-mid 4th-century pottery and 363 g. of kiln debris, while pit 573 contained 66 sherds of possible mid 3rd-century pottery and 409 g. of kiln debris, and may therefore have been earlier than 572. These two features were suggested on site to represent a 'possible disused kiln', but there is no clear evidence to support this interpretation.

### *Area D2/3*

These areas lay between Areas D4 and D1 to the SE. The principal feature here was an L-shaped ditch (ditch 23/23A). The E. arm (ditch 23) ran roughly N.-S. for approximately 20 m. At its S. end the ditch turned through a right angle and as ditch 23A ran slightly N. of W. for at least 37 m. Its full extent to the W. is unknown, but the ditch may have been at least 50 m. long. Similarly, the extent of ditch 23 to the N. is not known. A dog skull was noted in the assessment report as having been found at the junction of 23 and 23A. The phasing and dating of these features is unknown. A further right-angled ditch was recorded in plan in Areas D3 and D4 extension, lying on a NE.-SW. and SE.-NW. alignment within the angle of ditches 23 and 23A. There is no further information about this feature and it is not certain that it was of Roman date.

### *Area D6*

At the W. end of D6, a row of four possible close-set postholes was indicated on the pre-excavation plan, but no further records survive.

### *Area D1* (Fig. 10)

Area D1 was an L-shaped area in the SE. of Zone D. It contained no archaeological features along its E. arm. Three intercutting ditches were broadly dated to the mid 3rd-4th century, and a kiln was noted outside the W. limit of excavation.

Ditch 18 was located toward the NE. edge of D1, perpendicular to ditch 15/16, and cut by it. At the baulk, the ditch was 0.4 m. deep and 1.5 m. wide, but its W. side was truncated by a land drain. The sides were moderately sloping, although the lower half was slightly more steep than the upper half, giving an impression of being stepped. The break of slope to the rounded base was very gradual. The ditch was filled by a single fill (509/506/548), a firm brownish green silty clay containing 13 sherds of mid 3rd-4th-century pottery. A further area of excavation, 4 m. to the NE., revealed the ditch terminus *c.* 14 m. from the intersection with ditch 15/16.

Ditch 17, orientated NE.-SW., had a surviving length of *c.* 4 m. before it was cut by ditch 15. At its S. end the ditch was 0.9 m. wide, but narrowed to 0.4 m. at the point of intersection with ditch 15. The sides sloped very gently to a flat base. At the S. edge of the excavation two fills were noted. The lower one (506/547) was a firm brownish green silty clay approximately 0.06 m. thick, covered by a stiff brownish grey to greyish green silty clay containing 164 sherds of pottery dating up to the mid 4th century and 215 g. of kiln debris. The ditch likely continued into the extended area of excavation to the N., although this would have involved a change of alignment to run through the path of ditch 18, however no evidence of this was recorded in the section. This relationship may have been obscured by land drains, or ditch 18 may have been later than ditch 17, and therefore may have truncated the earlier ditch.

The latest feature in area D1 was ditch 15/16, L-shaped in plan, with a 21 m. length (ditch 15) *c.* 1 m. wide on a NW.-SE. axis and a further 9 m. length (ditch 16) 1.5 m. wide running perpendicular on a NE.-SW. axis. The depth of the ditch varied from 0.2-0.4 m., the sides were moderately to steeply sloping, and there was a very gradual break of slope to a rounded base. It contained two fills, the lower one was an orangey green stiff clay with seven sherds of late 3rd-century or later pottery and 585 g. of kiln debris. This fill was very similar in nature to the natural clay, but was thought to be about 0.1 m. deep. The upper fill was a grey to green silty clay containing 24 sherds of 4th-century pottery and 1.2 kg. of kiln debris, predominantly from the top 0.2 m.

On the penultimate day of excavation a kiln (640) was noticed just outside the limit of area D1, and time allowed for preliminary recording only. The kiln was heavily truncated by a land drain and machine action, only the N. part of the chamber wall survived *in situ*. Nothing remained of the pedestal and the stokehole was not located. The firing chamber was sub-circular with vertical sides, 1 m. in diameter and 0.1 m. deep. The base of the chamber sloped gently to the SW., and the flue appeared to be aligned NE.-SW. The chamber was lined by (641), a baked clay, reduced and dark grey on the inner wall and an oxidised bright orange on the

outer wall. It was badly damaged, 0.76 m. x 0.5 m. survived *in situ*. The kiln was filled with a firm black clay with a moderate amount of kiln debris, but only five sherds of an Oxford colour-coated ware vessel (fabric F51) were recovered, including a stamped base.

### *Area D7* (Figs. 11 and 12)

Area D7 lay in the S. part of Zone D. It contained two groups of linear features with a cluster of pits and other features between them, and a pottery kiln. Kiln 606 (Fig. 12) was positioned in the SW. corner of D7, aligned approximately NE.-SW. The firing chamber (606) was roughly circular in plan, 0.7 m. in diameter and 0.08-0.11 m. deep, with vertical sides. The inner wall of the chamber and the pedestal (607), a simple tongue projecting from the rear wall of the firing chamber, were a dark grey fired clay. The outer edge of the wall was orange in colour. The chamber wall on the SE. side was dark reddish brown in colour. Nothing remained of the floor of the chamber. A short flue linked the firing chamber with the stokehole. Fragments of the fired clay flue wall survived on the SE. side. The stokehole (609) was sub-circular in plan, 3.2 m. long, 2 m. wide and at most 0.2 m. deep. Generally the sides of the stokehole sloped gently, but were almost vertical as it narrowed to join the flue, and the base of the stokehole was even.

The firing chamber was filled with firm very dark brown clay (608) with a large amount of kiln debris fragments, occasional charcoal and 11 sherds of pottery, including two colour-coated sherds indicating a date after AD 240. In the area of the flue, the deposit was overlain by the lowest fill of the stokehole (605). This fill was a firm black clay, 0.05-0.13 m. thick, containing kiln debris, charcoal and 73 sherds (2.7 kg.) of late 2nd-century and later pottery, mostly white wares and mortaria. Overlying this fill was (604), a firm yellowish grey clay with 655 g. of kiln fabric and 57 sherds of mid-late 3rd-century pottery. At the SW. limit of the stokehole, there was a deposit (603) containing 27 sherds (781g.) of mid-late 3rd-century or later pottery.

Immediately S. and W. of the stokehole were two rectangular pits. Pit 638 was approximately 2 m. in length and 0.9 m. wide and contained a single fill (639) with 23 sherds of mid-late 3rd-century or later pottery. Pit 610 was smaller, *c.* 0.7 m. wide, and contained a single fill (611) with 11 sherds of pottery from the same period. Although these features would appear to have been cut by the stokehole, they may have been only marginally earlier. The kiln, stokehole and pits were overlain by layer 602 (not shown in section), a black clay containing much charcoal, 1 kg. of kiln debris and 261 sherds (4.29 kg.) of mid-late 3rd-century and later pottery, amongst which fabrics M22 and W10 were the most common. Layer 602 included finds from fill 605 in cases where the stratigraphy was uncertain.

The kiln was located within the arms of a T-shaped ditch (21/22). A 10 m. length of NE.-SW. aligned ditch (22) ran from the S. edge of the excavation. Approximately 4 m. before the NE. terminus of this feature, the ditch either divided or was abutted by a further ditch (21), which ran on a roughly ESE.-WNW. alignment for at least 12 m. and possibly terminated just short of the W. edge of excavation, giving a total length of *c.* 22 m. The sides of the ditch were regular, and the break of slope to the rounded base was very gradual. The ditch was 0.8-1.0 m. wide and on average 0.3 m. deep, and contained a single fill (513/514) of firm greenish grey silty clay with 140 sherds of mid 3rd-4th-century pottery and 1.2 kg. of kiln debris. It was truncated by a furrow and land drains.

At the N. end of the area was an L-shaped ditch (19), running roughly NE. to SW. and then turning to the NW. Each arm was approximately 3 m. in length and varied in width from 0.6-0.8 m. The terminal of the NE. to SW. arm was not clearly established due to truncation by land drains and a furrow. The feature may have extended further to the NE. The ditch had moderately sloping sides and a rounded base and a single fill, 0.17-0.25 m. thick, of dark grey silty clay containing 11 sherds of mid-late 3rd-century or later pottery.

Immediately S. of ditch 19 was a NE.-SW. aligned linear feature, ditch 20, only 0.4 m. wide and 0.1 m. deep with a rounded profile. This contained a single fill of brownish grey silty clay with six sherds of mid 3rd-century pottery, although it was noted that there may have been some contamination from the fills of feature 519 to the S.; both features had very similar fills, possibly indicative of contemporary backfilling.

South of ditch 19 and adjacent to ditch 20, feature number 519 was given to a group of several shallow features, probably pits or hollows. The maximum extent of the feature group was 5 m. x 3.5 m., and it was 0.1-0.2 m. deep. Where the edges were visible, these were moderately sloping and the base was irregular or flat. Eight areas were excavated, each containing a single fill of a firm greyish brown silty clay with some yellow mottling. These produced a total of 67 sherds (2.1 kg.) of mid 3rd-4th-century pottery. In the S. part of the feature three possible postholes were noted (A, B and C), while N. of these the fill of feature 519 sealed an earlier pit (520). This was sub-circular in plan with moderately steep sides that were slightly stepped, particularly on the E. side, and a sharp break of slope to a flat base. It contained two fills; the lower a soft yellowish brown to grey silty clay, 0.1-0.2 m. thick, and the upper a soft grey silty clay, 0.15-0.2 m. thick, containing 8 sherds of mid-late 3rd-century pottery.

NE. of feature 519 was a stone-lined rectangular pit (612), 0.9 x 0.6 x 0.3 m., aligned approximately NW.-SE. The corners of the pit were rounded and the sides were very steep with a sharp break of slope to a flat base. The sides were lined with flat sub-rectangular stone slabs (613), but the base was unlined, although some of the slabs had collapsed onto it. The primary fill of the pit (614) was a firm pale grey-brown clay, 0.15 m.

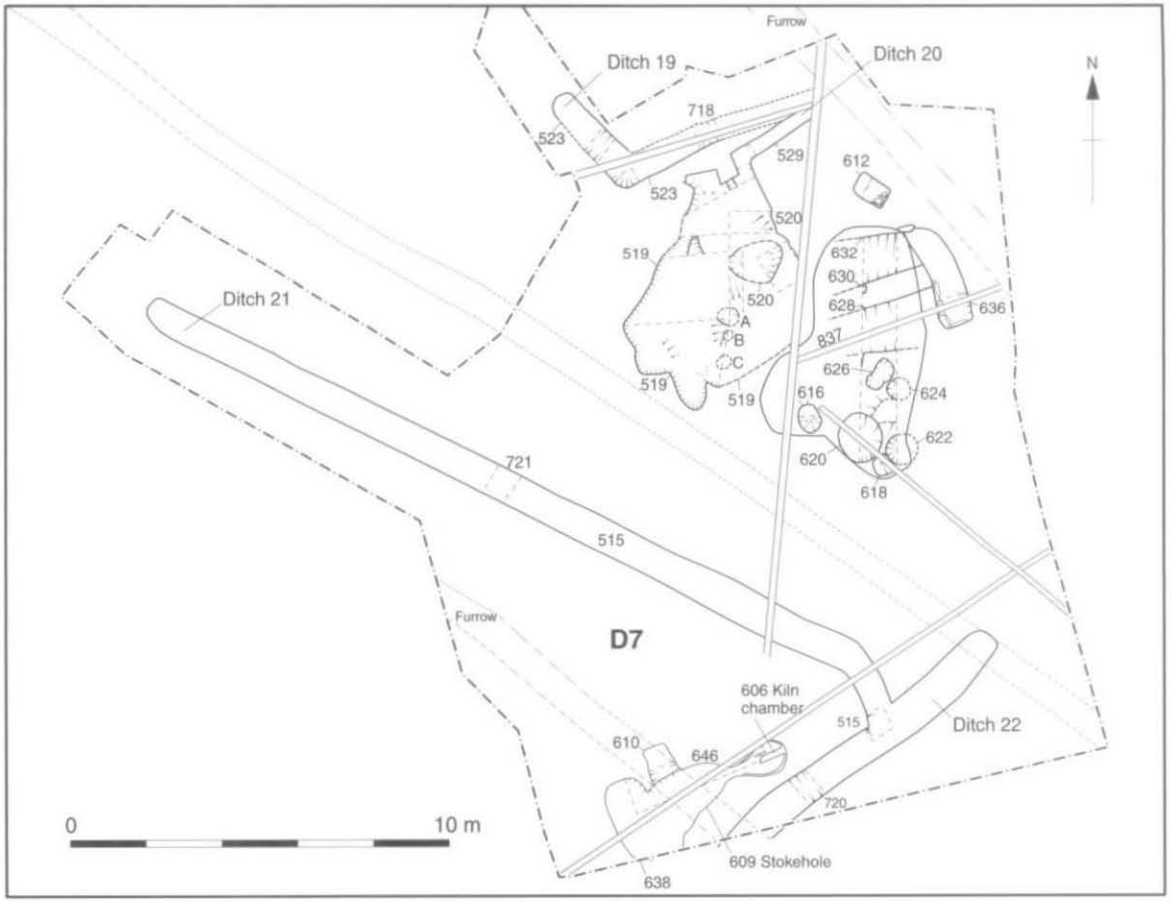


Fig. 11. Zone D plan of Area D7.

thick, possibly used in pottery production, which contained 20 sherds of 4th-century pottery. This was sealed by 615, a black silty clay with occasional charcoal fragments. Another stone lined rectangular pit (636), aligned NNW.-SSE., lay to the SE. This was larger than pit 612, *c.* 2.6 x 0.8 x 0.3 m., with steep sides and a sharp break of slope to a flat base. It was lined with stones (634) bonded with clay (635), and filled with silty sand with frequent charcoal and 24 sherds of mid-late 3rd-century pottery.

West of pit 636 and between it and pit group 519 were two parallel ephemeral gullies, aligned roughly ENE.-WSW. Both had moderate to steeply sloping sides and flat bases. Gully 632 was 1.1 m. wide and 0.05 m. deep, and contained a single fill (633) of mid grey silty clay with common charcoal and three sherds of 2nd-century pottery. It may have been cut by pit 636, but this is uncertain. Gully 628 was slightly more substantial, 1.2 m. wide and 0.14 m. deep, and contained a single fill of firm pale grey brown slightly sandy clay with occasional rounded stones and 11 sherds of mid 3rd-century and later pottery. It was truncated by a land drain, but the relationship with pit 636 was unknown. Adjacent to gully 632 there was a small circular feature (630), approximately 0.2 m. diameter, which was not examined.

South of the gullies and stone-lined pits was a group of pits and postholes. 626 represents either two intercutting postholes or a posthole and a re-cut, 0.84 x 0.51 x 0.2 m., with shallow irregular sides and a rounded base. A single fill (627) of fine pale grey clay was noted. Immediately SE. was a possible posthole 624, 0.5 m. across and 0.1 m. deep with a very similar profile to 626. Approximately 0.9 m. S. was possible posthole 622, 0.85 m. in diameter and 0.2 m. deep. This had stepped sides, a slightly rounded base and a single fill (623) of pale greyish brown slightly sandy clay. Posthole 622 cut possible posthole 618 which was 0.5 m. in diameter and 0.08 m. deep, with steep sides and a slightly irregular base. This had a single fill (619) of pale grey-brown slightly sandy clay. Most of these features produced mid 3rd-century or later pottery sherds.

Adjacent to 622 and 618 was a larger pit (620), 1.3 m. in diameter, with moderate to steep-sloping sides and a sharp break of slope to an irregular base. It was filled by (621), a pale greyish slightly sandy clay, 0.2 m. thick, with small rounded to sub-angular stones, occasional charcoal flecks and three sherds of 4th-century pottery. This fill was very similar in character to an undated layer (637) that was seen over much of the NE. in area D7. One section indicates that postholes 622 and 626 might have been cut into this layer.

West of pit 620 was another possible posthole (616), 0.6-0.7 m. across and 0.25 m. deep, with irregular sides and a flat base. It was filled with a firm pale grey to brown slightly sandy clay (617), plus rare large rounded stones and occasional sub-angular stones, possibly indicative of post packing. The fill contained six sherds of mid 3rd-century or later pottery.

### *Phasing in Zone D*

Phasing of Zone D was problematic not only due to the limited number of intercutting features, but also because of the isolated areas of excavation. Concentrations of features were revealed in areas D1, D4 and D7, and individual matrices were compiled for these areas. Any phasing was based on a combination of stratigraphic relationships and pottery dating.

*D4*: Area D4 appeared to contain two main phases of activity. The earlier consists of the kiln (558), gully 560/562 running SW. from its stokehole, and one of the intercutting pits (573) SW. of the kiln. This phase was dated to the 3rd century, with the majority of the pottery evidence suggesting a date during the second half of that century. The second phase in area D4 was represented by a large pit 584/585/582 and associated gully 586, together with pit 583 to the S., pit 572 SW. of the kiln and the final fill of the kiln itself. This phase was dated to the 4th century.

*D1 and D7*: The ditches in area D1 were of two main phases, ditches 17 and 18 were cut by ditch 15/16, but all were dated to the mid 3rd-4th century on the basis of associated pottery. Ditches 21/22 of D7 may have been spatially related to ditch 15/16 of D1, possibly forming some kind of enclosure, and were also dated to the mid 3rd-4th century. Kiln 606 (Fig. 12) adjacent to ditch 22 contained predominantly mid-late 3rd-century pottery, but the primary fill of the stokehole (605) contained reduced and white wares, including multiple examples of mortarium type M12, dating to the period AD 180-240.[36] While it was thought that this deposit post-dated firing chamber fill 608, which contained two colour-coated sherds dated after AD 240, these could have been intrusive or the relationship, which was marginal, could have been misrecorded. An early 3rd-century date is preferred for the kiln, with later fills (and possibly use) of the period after AD 240. The kiln would thus belong to the earlier phase of activity in Zone D.

The series of shallow scoops (519) are assigned to the second (mid 3rd-4th centuries) phase based on pottery evidence, while the pit (520) which they cut dates to the earlier 3rd-century phase. The adjacent group of pits and postholes contained very little pottery and could fall into either phase. On the basis of the

[36] Young, 70.

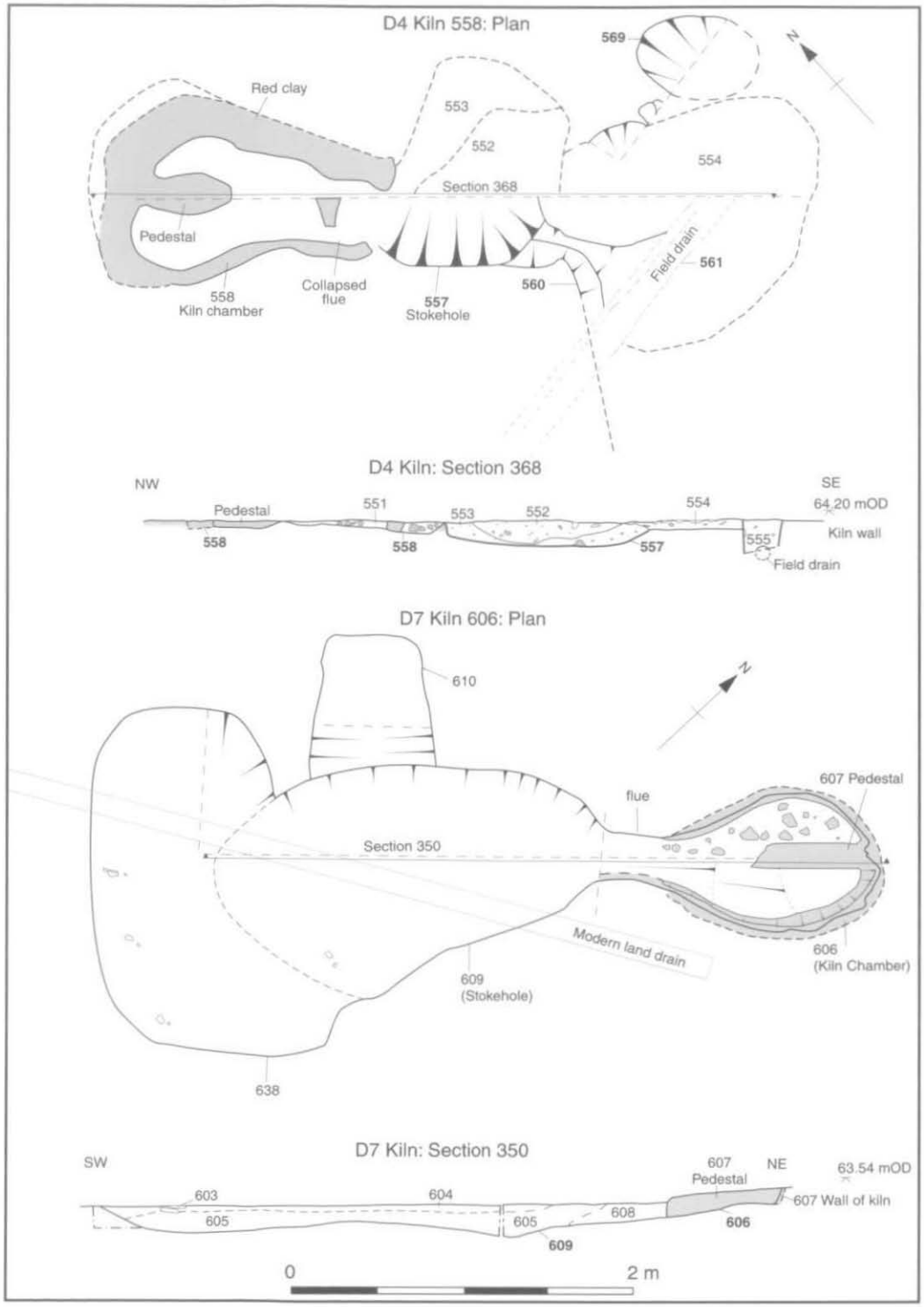


Fig. 12. Zone D kilns 558 and 606.

pottery, stone-lined pit 636 may have been slightly earlier than stone-lined pit 612. The former may fall into the earlier phase and the latter into phase 2. Most other features in the area appear to be dated, where evidence is present, to the mid 3rd century or later, though the spatial relationship with kiln 606 (Fig. 12) would suggest that the origin of ditch 21/22 should be assigned to the late 2nd-early 3rd century if not earlier.

Kiln 640 observed outside area D1 may be dated after the mid 3rd century AD, but this is uncertain.

## THE EXCAVATIONS: ZONE E (Fig. 13)

Zone E was based around evaluation Trenches 2, 13 and 15, which produced high densities of features and quantities of Roman pottery. Zone E was defined by the OAAS brief as an area *c.* 145 x 50 m. Four trial trenches were initially opened across the zone in order to assess which parts had the greatest potential for open-area excavation. Ultimately, an area of *c.* 60 x 40 m. was subject to detailed examination. The area contained three Romano-British pottery kilns, a series of interconnecting and intercutting ditches and several pits and posthole groupings.

The principal area excavated in Zone E measured *c.* 45 x 40 m. and was located in the W. end of the zone centred on evaluation Trench 2. The area was machined to the top of the archaeological horizon, which was visible generally as a dark grey-brown sandy silt, often with dense concentrations of pottery. These deposits lay 0.3-0.4 m. below present ground level.

Following machining, cleaning and planning, seven broad groups of features were identified and defined for further examination. These were initially assigned group numbers 1-7, prefixed by the letter K to indicate their location within the kiln area of Zone E, though only groups K2-K4 actually included pottery kilns. The misleading 'K' prefixes were subsequently dropped and an alternative scheme of nomenclature used for these sub-areas (E1-E6 and Area P).

### AREA E1 (Fig. 13)

Area E1 was located in the NW. corner of the site, immediately S. of the baulk. At the W. end of this area there was an enigmatic feature (688). This was *c.* 1-2 m. wide and 0.1-0.4 m. deep, the more shallow depths recorded toward the S. The sides were irregular, moderately sloping and the base was irregular to flat. It contained a single fill (689) of grey silty sand with 18 sherds of 2nd-century pottery. This feature appeared to be cut by posthole 686, 0.7 m. in diameter and 0.4 m. deep with a single fill (687) of fine light grey sand. This contained 12 sherds of 2nd- to 4th-century pottery.

Adjacent to feature 688 was ditch 5 (654, 693), orientated NNE.-SSW., 0.8-1.0 m. wide and 0.25 m. deep, with moderately sloping sides and a flat base. This was filled by grey-brown silty sand with red mottling (656, 655) and contained 20 sherds of pottery, mostly of late 1st- to 2nd-century date, but including a single sherd of mid 3rd-century date and 75 g. of kiln debris. This feature appeared to be cut by 657, a posthole or small pit, approximately 0.5 m. in diameter. The fill (658) contained 55 sherds (2.5 kg.) of pottery dating from the mid-late 3rd to mid 4th century, plus a rectangular rubbing stone and a complete mortarium filled with clay (not located). East of ditch 5 there was a further possible posthole (652), 0.6 m. in diameter and 0.2 m. deep. It contained a single fill of grey silty sand with some reddish brown mottling.

East of these features was a T-shaped ditch system (excavated as cut numbers 669, 671 and 675, hereafter referred to as 675), running on a NE.-SW. alignment for 1.3 m., and then NW. to SE. for a minimum of 3 m. The width varied from 0.5-0.6 m. and the depth was 0.11-0.19 m. The fill was a sandy silt, mostly dark grey in colour and contained 19 sherds of Roman pottery and 693 g. of kiln debris. The ditch may have continued as a slightly shallower (0.08 m. deep) NW. to SE. linear feature 683. This contained 20 sherds of 2nd- to 4th-century pottery. The SE. end of this feature was truncated by a modern stone filled feature.

Both 675 and 683 were cut by a sub-circular pit (659, excavated as cut numbers 659, 681, 679), 2 m. long, 1.5 m. wide and 0.33 m. deep. Where seen, the sides were moderately sloping and the base slightly rounded. It was filled in a single episode (682, 680, 691) with black silt rich in charcoal with 50 sherds of pottery ranging from 2nd-4th century in date.

At the northern baulk, a small linear terminal (673) with a V-shaped profile may have been of post-medieval or modern date. An adjacent feature (661, 660) may also have been of this phase. It was 2.05 m. across and 0.3 m. deep, sub-rectangular in plan with vertical sides, and contained a fill of orangey brown silty sand. It truncated ditches 675 and 683.

All features in this area were recorded as overlying a layer of Roman soil (315), a pale brown sandy silt seen across the site. From this layer a polished stone axe (see Worked Stone below) and flint flakes were recovered, as well as a random surface collection of pottery rims and bases amounting to 655 sherds (17.3 kg.), mostly of mid-late 3rd-century date. In the NE. area of the site, this deposit overlay a further soil horizon (429), a friable light bluish grey sandy silt with occasional rounded pebbles, below which the natural orange sand was observed.

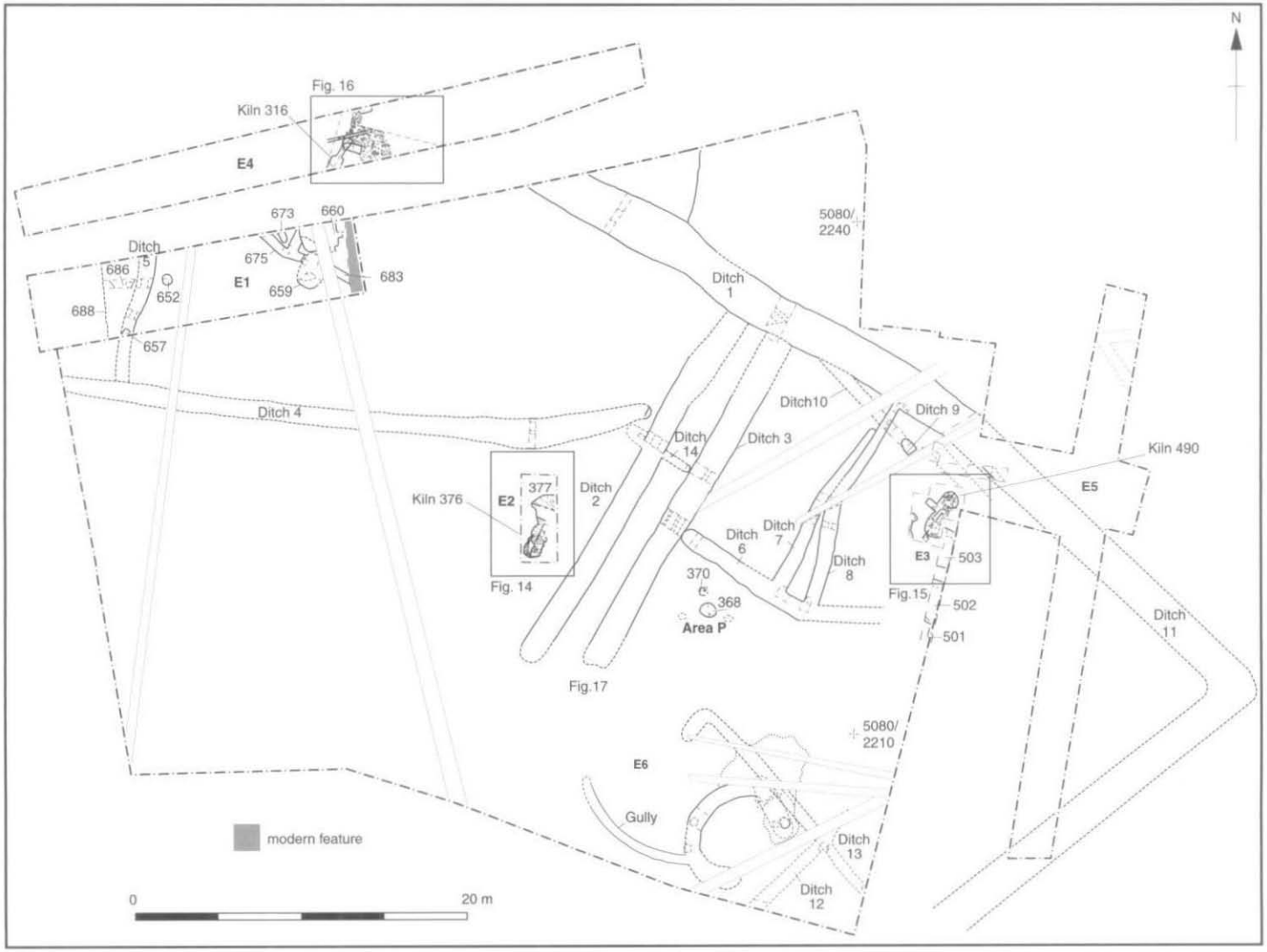


Fig. 13. Zone E overall plan.

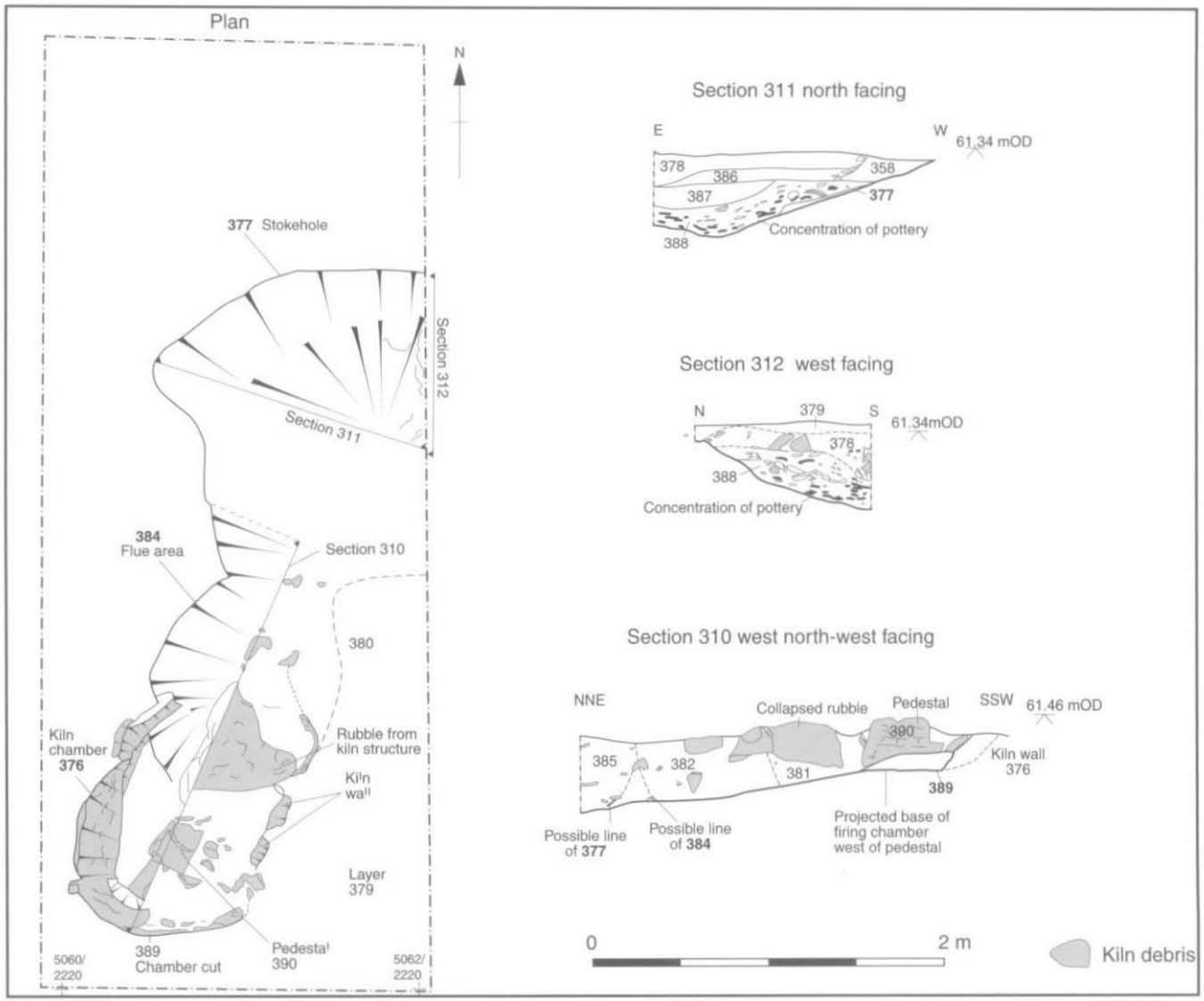


Fig. 14. Zone E kiln 376.

## AREA E2 (Figs. 13 and 14)

Area E2 contained a SSW.-NNE. aligned kiln (376) (Fig. 14) toward the centre of Zone E. The cut (389) for the kiln chamber was oval, and orientated SSW.-NNE., 1.3 m. in length, 1 m. wide and 0.3-0.4 m. deep. The sides were steep, with a moderate break of slope to a flat base. The kiln structure (376) was composed of fired clay, brick red where oxidised, and bluish green fired clay where heavily fired. The firing chamber walls survived to a height of 0.3 m. and were approximately 0.05 m. thick. Only the W. part of the chamber was excavated. Toward the S. end of the kiln chamber was a pedestal (390), 0.45 x 0.2 x 0.2-0.3 m. high. It is not entirely certain from the records if this block of fired clay was attached to the back of the chamber wall, although this seems likely. The pedestal was generally fired a brick red colour but the NE. face was heavily fired, a greenish blue (it is described as 'vitrified' in the site records, but it is not clear that this was truly the case). The chamber contained a single fill (381) of very soft mid brown sandy silt, 316 g. of kiln debris and 81 sherds (2 kg.) of late 2nd-mid 3rd-century pottery. No charcoal was seen in the deposit. The chamber fill was said to abut the fill of the stokehole.

At the N. end of the firing chamber was a flue (384). This was poorly defined but may have been up to *c.* 0.9 m. in length, 0.5 m. wide and 0.35 m. deep. It was filled by 382, a very soft mid brown silty sand with 16 sherds of 2nd-century (or later?) pottery and 473 g. of kiln debris. There was very little charcoal present in this deposit, and also very little burning evidenced on the base of the flue.

The stokehole (377) was irregular in plan, 1.9 x 1.6 m., and 0.4 m. deep. Four fills were recorded in its N. part. The lowest (388) was a very soft black silt, up to 0.08 m. thick, with frequent charcoal, 59 sherds of mid-late 3rd-century pottery and 787 g. of kiln debris. This was overlain by 387, a soft black sandy silt with areas of yellowish brown clay with frequent charcoal, 37 sherds of mid-late 2nd-century pottery and 64 g. of kiln debris. Above this, the fills lay horizontally; 386 was a very soft greyish brown-black sandy silt with 388 sherds (3.6 kg.) of late 2nd-century (or possibly later) pottery, 1.3 kg. of kiln debris, and frequent charcoal. This was sealed by 378, a very soft brownish black sandy silt, a maximum of 0.4 m. thick, with 135 sherds (3.4 kg.) of late 2nd-3rd-century pottery and 3.2 kg. of kiln debris. The S. part of the stokehole, nearest the flue, contained a single fill (385), a soft black sandy silt with 38 sherds of 2nd-century or later pottery and 794 g. of kiln debris. The fill of the flue did appear to abut fill 385. This part of the kiln may have been used as a dump, containing mid-late 3rd-century pottery in the lower fill and 2nd-century pottery in the later fills.

After the abandonment of the kiln, a final layer (379) covered the firing chamber and the stokehole. This was a very soft mid-brown sandy silt, 0.1-0.2 m. thick, which covered an area of 3 x 2.1 m. It contained 50 sherds (1.8 kg.) of mid-late 4th-century pottery, and also kiln debris. This may have been contemporary with layer 380, a friable mid-brown silty sand up to 0.15 m. thick, seen immediately to the north, covering an area of 5 x 2 m. and overlying the natural subsoil. This deposit, however, did not produce any finds.

## AREA E3 (Figs. 13 and 15)

At the E. edge of Zone E, a kiln (490) (Fig. 15) and several possible features interpreted as intercutting pits were excavated, but stratigraphic problems were particularly acute in this area. The kiln, aligned NE.-SW., was heavily truncated and was only partially excavated. The firing chamber was set within a circular cut (491) with concave sides, 1.05 m. in diameter and 0.2 m. deep. The wall of the kiln (490) was observed as a semi-circle of orange red to grey black fired clay, approximately 30 mm. thick and located 0.2 m. from the edge of the cut. The tongue-style pedestal appeared to be *in situ*, as did the chamber wall in some areas, although it was slumped in others and destroyed entirely on the SW. side. There was no evidence of a floor in the firing chamber.

Within the confines of the firing chamber wall, the fill (473) was a firm dark red-brown silty sand, 0.2 m. thick containing 450 g. of kiln debris (fragments up to 60 mm. thick), and 153 sherds (1.5 kg.) of pottery, possibly 2nd-century in date. In the area between the kiln wall (490) and the cut for the chamber (491) was a fill (470, 471 and 472) of mid-dark brownish grey silty sand with pebbles up to 100 mm. in diameter. This deposit may represent gradual accumulation during or after the use of the kiln. It contained a total of 101 sherds (584 g.) of pottery ranging in date from the 2nd-4th centuries, (though predominantly mid-late 3rd-century to mid 4th-century), and 298 g. of kiln debris.

The stokehole (492) to the SW. was oval to sub-rectangular in plan with irregular sides. It was 1.6 m. long, 0.8 m. wide and 0.17-0.28 m. deep, and contained fill 474, a firm dark grey to black deposit of sandy silt, 0.07-0.25 m. thick, with charcoal flecks, pebbles, 2 kg. of kiln debris fragments, and 1746 sherds (29.4 kg.) of mid 3rd-century pottery. The pottery was concentrated toward the firing chamber and included an almost complete vessel. The stokehole and kiln chamber were finally filled with rubble (475) in a matrix of medium to dark brown silty sand containing 4.4 kg. of kiln debris fragments and 46 sherds (652 g.) of 2nd- to 4th-century pottery.

SE. of the kiln were three intercutting features (501, 502 and 503). The extent of the features was not clear in plan and their interpretation remains unclear. A 6 m. x 1 m. strip was excavated in an attempt to define the features; the layer removed (493/494), was thought to represent the upper fills of the features. It was a firm dark grey to black sandy silt, 0.1 m. thick, with 945 g. of kiln debris and 121 sherds (1.25 kg.) of late 2nd-century and later pottery. Below this, feature 503, with excavated dimensions of 2 x 1 x 0.25 m., had curving sides and a flat base. It contained two fills, the lower (499/505) was a dark grey to dark brown sandy silt, 0.12 m. thick, with 17 sherds of Roman pottery and 119 g. of kiln debris. This was overlain by (498/504), a dark grey to black sandy silt, 0.2 m. thick, with 185 g. of kiln debris and 130 sherds (1.2 kg.) of pottery dated predominantly to the 3rd-4th centuries. Feature 503 was likely cut by stokehole 492, but this relationship remained unclear.

Feature 502 again contained two fills. The lower was 496, a firm grey silty sand up to 0.5 m. thick with 8 sherds of Roman pottery. This was overlain by 495, a compact black sandy silt up to 0.17 m. thick, with 61 sherds (597 g.) of mid-late 3rd-century pottery and 286 g. of kiln debris. The S. limit of this feature was not recognised and may have been over-excavated into the natural and into feature 501, which it seemed to cut. The latter was described as an oval pit, aligned NE.-SW. It had concave sides and a fill (497) of firm dark grey silty sand with 786 g. of kiln debris fragments and 44 small sherds of 2nd- to 4th-century pottery.

SW. of the kiln structure was a NNE.-SSW. aligned pit(s) (506) with moderately curving sides. The excavated dimensions were 1.5 x 0.4 x 0.2 m. It contained a single fill (500) of dark grey to black sandy silt with 802 g. of kiln debris fragments and 135 sherds (2.93 kg.) of mid 4th-century pottery.

## AREA E4 (Figs. 13 and 16)

Area E4 lay within the roughly E.-W. aligned trench located at the N. edge of Zone 4, immediately S. of the fence marking the N. boundary of the site at this point. The primary feature in area E4 was a NE.-SW. orientated kiln (316) (Fig. 16), with tongue-style pedestal and a single flue. The cut for the firing chamber (316) was 0.7 m. in diameter and 0.3 m. deep, sub-circular in plan, with steep sides and a sharp break of slope to a flat base. The chamber wall and pedestal (317) were formed of fired clay, an orange colour in places, and a reduced dark grey in others. Patches were vitrified and greenish in colour. The wall was 0.1-0.2 m. thick and survived up to 0.3 m. high in places. The chamber was filled by 318, a black sandy clay with occasional charcoal flecks, 125 g. of kiln debris and 25 sherds of 2nd-century pottery. The chamber was truncated by rectangular pit (322), aligned approximately E.-W., with steep sides and a sharp break of slope to a flat base. This was filled with 323, a firm black sandy clay with occasional charcoal flecks and 23 sherds of Roman pottery.

The kiln had a narrow flue *c.* 0.6 m. long which opened into a sub-rectangular stokehole (328). This was 0.7 m. wide and 0.22 m. deep and at least 1.1 m. in length. The sides were mostly vertical, although slightly undercut in places, with a sharp break of slope to a flat base. There was a steady, gentle slope up from the SW. end of the stokehole to the firing chamber. The stokehole was filled with 329, a black slightly sandy clay with occasional charcoal flecks and fifty sherds (323 g.) of possible 2nd-century pottery and 986 g. of kiln debris. A further group of pottery (57 sherds, 1.8 kg.) was recorded as coming from the cut, rather than being assigned to fill 329. The majority of the pottery was the same as in 329, with occasional pottery sherds of 3rd-century date.

Abutting the kiln chamber was a cobbled sandstone surface (327), *c.* 2 m. x 3 m. x 0.1 m. deep, slumping slightly to the N. and W. This was constructed of sub-angular sandstone pieces of irregular size, in a very dark greenish brown sandy clay matrix. Beneath the sandstone surface was a deposit (330/333) of firm very dark greenish brown sandy clay, 0.1-0.2 m. thick, with nine sherds of mid-late 3rd-century or later pottery. This may have been a make-up layer for the cobbled surface, and in turn sealed a layer of mottled yellow and light grey sand with small angular stones and occasional flints, 0.14 m. thick.

A layer (321) of dark blackish brown sandy clay, 5 m. x 3 m. and 0.33 m. thick, built up around the kiln chamber and sealed the stokehole and cobbled surface. It contained 25 g. of kiln debris and 300 sherds (5.7 kg.) of mid-late 3rd-century or later pottery. This appears to represent several dumps of material. Part of the kiln wall (here 324) collapsed above this layer. The layer was cut by a V-shaped gully (319) and a sub-rectangular pit (326), both probably post-medieval or modern in date.

## AREA E5 (Fig. 13)

NE. of the kiln Area E3 at the eastern margin of Zone E a concentration of pottery was noted after machining. This area was labelled E5 but not excavated.

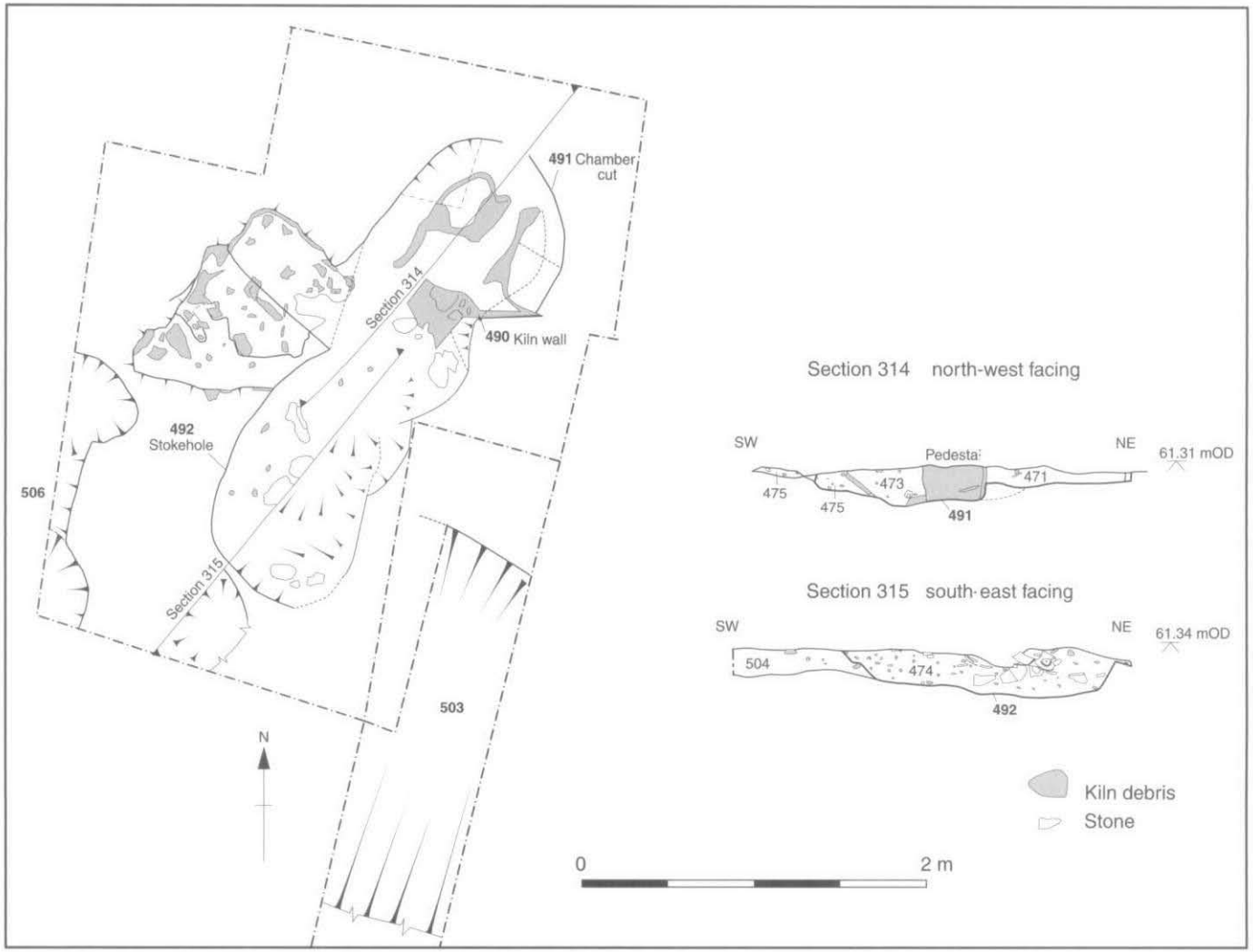


Fig. 15. Zone E kiln 490.

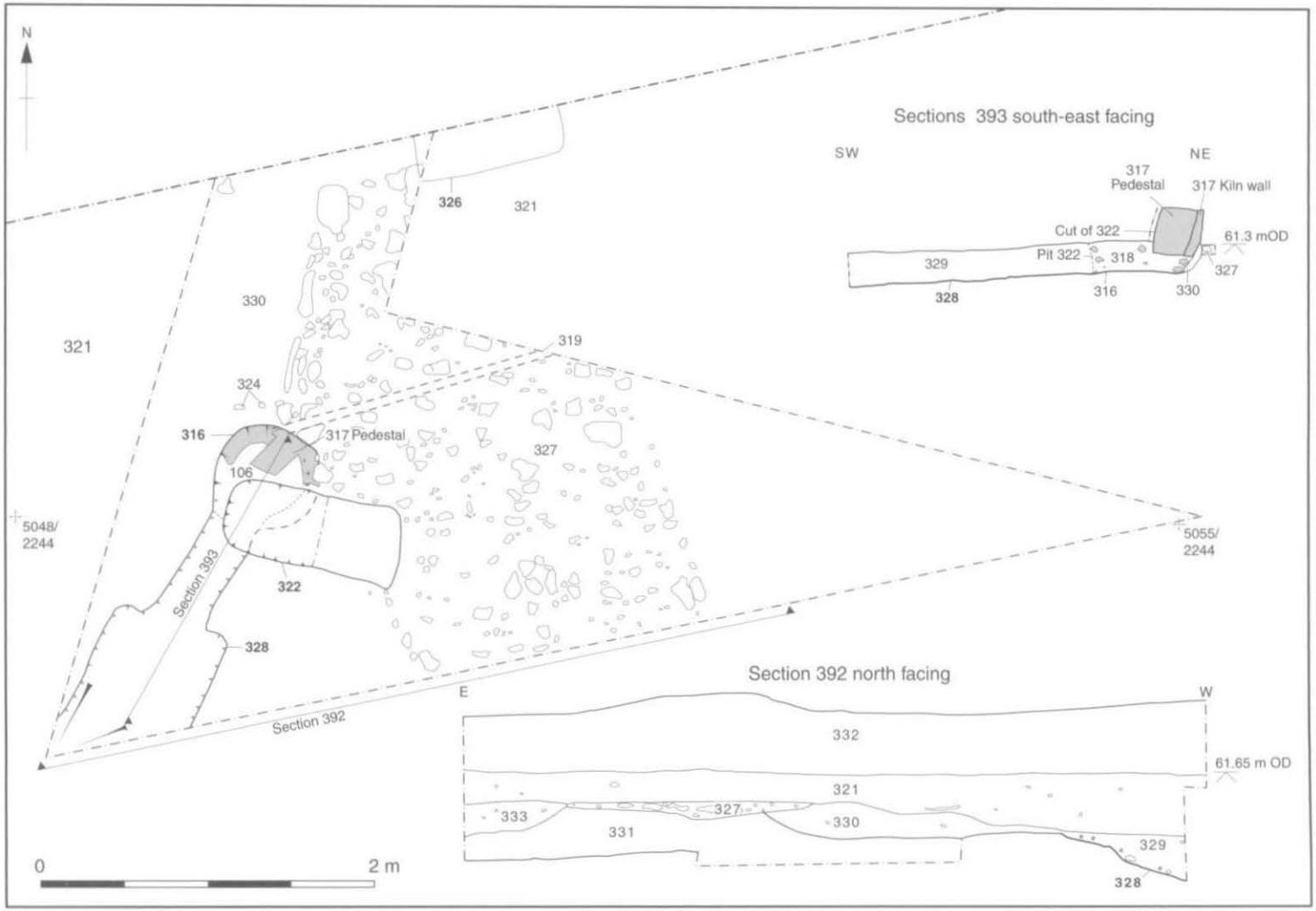


Fig. 16. Zone E kiln 316.

## AREA E6 (Figs. 13 and 17)

The SE. corner of the site was designated Area E6. The recording in this area was limited and many features were not located on the plan. Toward the centre of the area was a sub-rectangular feature (432), aligned NW.-SE. The feature was 3.97 m. x 1.1 m. x 0.12-0.36 m., with steep sides and an irregular base. It had a single fill (433) of soft dark bluish black sandy silt with 25 sherds of Roman pottery and 227 g. of kiln debris. An overlying layer (431) blended into the top of fill 433, and may have been the same as it. This was a soft mid to dark brown sandy silt with occasional pebbles, 21 sherds of 1st- to 2nd-century pottery and kiln debris.

At the base of this feature were seven hollows, all oval in plan and interpreted as possible postholes. Where discernible, the sides were steep and the bases slightly rounded. It was thought that the cutting of feature 432 had removed the original fills of these hollows/postholes, leaving only a bluish grey sand at the base of two. The smallest were 0.2-0.25 m. in diameter (439, 441, 443, 444 and 445), and the largest 0.5-0.6 m. diameter and 0.2-0.3 m. deep (435 and 437). Where fill 433 was seen above fill 435, 15 sherds of 3rd-century pottery and 211 g. of kiln debris were recorded, including a complete vessel in fabric O10. Above fill 437, 16 sherds (352 g.) of mid 3rd-century pottery and 44 g. of kiln debris were recorded.

Immediately W. of these features was a NE.-SW. aligned curving linear feature (427) (Fig. 17), up to 1.06 m. wide x 0.27 m. deep. The plan of this feature was not entirely clear, but seems to represent a semi-circular or penannular gully, with a possible posthole in its base on the W. side and a further unexcavated posthole just to the S. The feature was filled with soft black sandy silt with sandstone fragments (428), 92 sherds (1.1 kg.) of late 1st-late 2nd-century pottery, and 1.95 kg. of kiln debris.

## AREA P (Fig. 13)

North of feature 427, and between Areas E2 and E3, a group of discrete features was defined as Area P. The largest of these, pit 368, was sub-circular in shape, 0.95 m. across and 0.33 m. deep. The primary fill (367) was a soft mottled brownish grey sand, 0.14-0.2 m. thick, with 328 g. of kiln debris and nine sherds of 3rd-century and later pottery. This was overlain by 374, a firm yellowish grey clay, 0.1-0.15 m. thick, containing 874 g. of kiln debris, and 2nd-century pottery including an almost complete example of a fine grey ware (R10) vessel filled with greyish yellow clay and a complete profile of a mortarium which appeared to contain several large pieces of burnt sandstone. The tertiary fill (371) was a soft blackish brown silty sand, 0.08 m. thick, with much charcoal and 24 sherds of mid to late 3rd-century pottery.

Posthole 370 was oval in plan, 0.25 m. across and deep, with very steep sides and a rounded base. The main fill was 375, a soft yellowish grey sandy clay containing 15 sherds of possible 3rd-century pottery. In the centre of this fill was a deposit of yellowish grey clay adjacent to a vertical packing stone. A piece of worked stone (small find 100) came from the surface of the posthole. Two further probable postholes adjacent to pit 368 were not excavated.

## E7 DITCHES (Fig. 13)

The majority of ditches seen in Zone E were grouped together as E7. There were very few records for these features, and in most cases the relationships between them are unknown.

### *Ditch 1/11*

Ditch 1 and its probable continuation as ditch 11 defined the NE. and SE. boundaries of the area of identified Roman features in Zone E, though it should be noted that ditch 11 was only recorded on one plan and it is uncertain how much of its alignment was conjectural. Ditch 1 was aligned roughly NW.-SE. across the NE. corner of Zone E. It was 2 m. wide on average and *c.* 0.5 m. deep, becoming deeper (0.8 m) toward the E. edge of the site in cut 484. The profile of the ditch sides was extremely variable and irregular, on the whole the base was flat. Cuts 694 and 344 contained a single fill of light to mid grey sand with lenses of silt and occasional flecks of charcoal. 694 contained 50 sherds (2.1 kg.) of late 3rd- to 4th-century pottery and 344 produced 25 sherds (1 kg.) of mid-late 3rd-century pottery. At the intersection of ditches 1 and 8 (701) nine sherds of 2nd- to 4th-century pottery and a copper alloy pin (small find 132) were recovered. Cut 484, however, contained three fills, the upper two with slight iron panning. The primary fill (481) was of firm black clay containing 87 sherds (1.53 kg.) of 2nd-century pottery and 561 g. of kiln debris. Above this was 480, a dark blue black to grey pebbly clay with 106 sherds (1.28 kg.) of 2nd- to 4th-century pottery, plus 376 g. of kiln debris. The tertiary fill (479) was a dark grey to black silty sand with 123 sherds (1363 g.) of late 2nd- to 4th-century pottery and 574 g. of kiln debris.

Ditch 11 was recorded at one point, where it was 1.9 m. wide, 0.7 m. deep, with moderate to steep sides and a flattish base. It had two fills, the lower a dark grey clay (349) up to 0.33 m. thick, overlain by 350, a soft light yellowish grey clayey silt. No finds were recovered from this ditch.

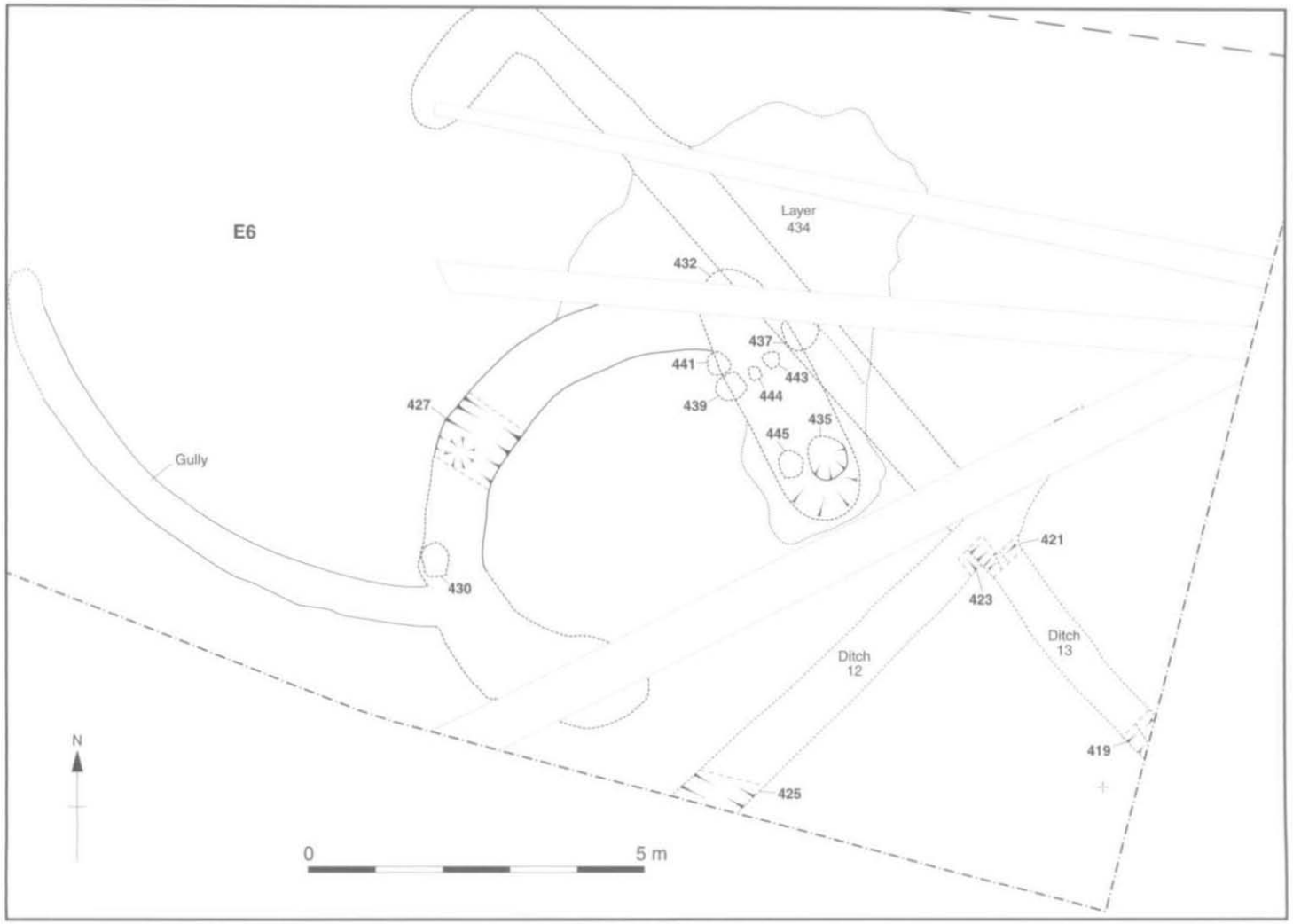


Fig. 17. Zone E plan of Area E6.

The total length of ditch 1/11 was at least *c.* 55 m., with a south-westerly return over 20 m. in length. The relationship between this feature and the slighter ditches 2, 3 and 8 at right angles to it was unclear as the fills were similar, although the section suggests that ditch 1 may have been cut by ditch 8. Ditch 1 may have continued for up to 23 m. from the E. edge of excavation.

*Ditches 2 and 14*

Ditch 2 ran SW. from ditch 1 for a length of approximately 24 m., passing SE. of kiln 376 in Area E2 (Fig. 14). At the intersection with ditch 14, ditch 2 was approximately 1.3 m. wide and 0.27 m. deep, with curving sides and a rounded base. It had a single fill (334) of dark greyish brown sand containing 90 sherds (918 g.) of mid-late 3rd-century pottery. Adjacent to kiln 376, the fill (391) was much darker and more silty with a far higher percentage of charcoal and pottery, suggesting a dump from the adjacent kiln. A short gully (ditch 14), 4.5 m. long, 0.5 m. wide and 0.1 m. deep, crossed ditch 2 at right angles. It had rounded termini, which abutted ditches 4 (to the NW.) and 3 (to the SE.). The gully had a single fill (339) of dark greyish brown clayey sand. This was very similar to the fill of ditch 2 and the features were therefore suggested as contemporary, though it seems more likely that ditch 14 was the later of the two.

*Ditch 3*

Ditch 3 lay 1.5-2.0 m. E. of ditch 2 and ran parallel to it for approximately 22 m. It was 1.45 m. wide and 0.48 m. deep, with generally steep-sloping sides and a flat base. It had a single fill (337/394) of light grey slightly silty sand with iron panning in the top 0.1 m. (Some contamination may have resulted from the modern sewage works). Fill 337/394 contained 14 sherds of 2nd- to 4th-century pottery.

*Ditch 4*

Ditch 4 ran E.-W. from a terminal adjacent to ditch 2 to the W. baulk of the zone with a length of at least *c.* 36 m. It was 1.75 m. wide and 0.34 m. deep, becoming more narrow and shallow toward its E. end. It contained a single fill (706) of pale grey slightly silty sand with no finds.

*Ditch 6*

Ditch 6, aligned NW.-SE., extended at least 9 m. from a terminal immediately adjacent to ditch 3. It was 1.15 m. wide and 0.2 m. deep, with an irregular profile, filled with soft light yellowish brown sand (395). The relationship between this feature and ditches 7 and 8 was not clear, but both may have abutted ditch 6.

*Ditches 7 and 8*

Ditch 7, orientated NNE.-SSW., lay approximately 6-7 m. E. of ditch 3 and parallel to it, and ran between ditches 1 and 6. No details or finds were recorded from this feature. It was probably cut by the adjacent ditch 8 which lay immediately E. of ditch 7 and varied from 0.5-1.0 m. in width and 0.12-0.2 m. in depth. The sides were irregular, moderately to steeply sloped and the base was rounded to flat. It was filled with 341, black clayey sand with 34 sherds of 2nd- to 4th-century pottery. The relationship between ditch 8 and ditch 10 was not ascertained, though it seems likely that ditch 8 was the later of the two.

*Ditch 9/10*

This was a NW.-SE. aligned ditch running (at the NW. end, it was defined as ditch 10) from the line of the major ditch 1/11 (and presumably cut by it, and also by ditch 8). No details were recorded. Roughly 1.2 m. SE. of the intersection of ditches 10 and 8, a further feature on the same alignment may have been a continuation or, more likely, a re-cut of it. Ditch 9 had a NW. terminus (695) at which point it was 0.5 m. wide and 0.12 m. deep, and contained a single fill with 5 sherds of Roman pottery. 1.5 m. SE. of the terminus the ditch was recorded as 1.05 m. wide and 0.6 m. deep with two fills. The primary fill (486), 0.25 m. deep, was a black sandy silt with 11 sherds of Roman pottery, while the upper fill (487) was 0.35 m. deep, a dark bluish black to dark grey silty sand with 48 sherds (900 g.) of mid 3rd- to 4th-century pottery. There are slight hints in plan that a further, possibly earlier, ditch ran parallel to ditch 9 between it and the large enclosure ditch 1/11 but there is no further evidence relating to this feature.

*Ditches 12 and 13*

These features formed part of a system of boundaries in the S. part of Zone E. Ditch 12 was aligned NE.-SW. It was at least 8 m. in length, 0.7 m. wide and 0.16-0.25 m. deep, with moderately sloping sides and a slightly undulating base with possible hollows, suggested to be the remains of postholes, as observed in the adjacent semicircular gully 427 (Fig. 17). The single fill (426) was a light bluish grey sandy silt. The relationship between this feature and ditch 13, at right angles to it, was not ascertained, but the two features were likely contemporary. At least a 4 m. length of ditch 13 was recorded in plan, but the ditch may have extended a

further 10 m. to the NW., perhaps terminating at a small pit or posthole. The width varied from 0.6-0.7 m. and the depth was 0.1 m. against the eastern edge of excavation, increasing to 0.19 m. at the intersection with ditch 12. The sides sloped moderately to a flat base and the ditch had a single fill (420/422) of light blue grey sandy silt with 43 sherds of late 2nd- to mid 3rd-century pottery, and 111 g. of kiln debris.

### *Phasing in Zone E*

*E1*: The earliest features in E1 appear to be feature 688 and ditch 5, both of which contained 2nd-century pottery. Pit 652 may also have been contemporary with these features. Ditch 675/683 and pits 659 and 686 were only broadly dated by pottery (2nd- to 4th-century), although the former pit cut the ditch. Pit 657 contained mid/late 3rd- to mid 4th-century material. Two possible post-medieval/modern features 661/660 and 673 were also recorded.

*E2*: The E2 kiln (376) produced late 2nd- to mid 3rd-century pottery from the firing chamber and slightly later material from the primary fill of the stokehole. The kiln was probably operational within the period from the late 2nd-mid 3rd century.

*E3*: The dating of the E3 kiln (490) (Fig. 15) was slightly problematic because mid/late 3rd- to mid 4th-century pottery was recorded in the fill of the cut behind the firing chamber wall. The chamber itself and the stokehole produced a large assemblage, principally of reduced wares broadly of 2nd-century date (two small colour-coated sherds in the stokehole fill were probably intrusive). It seems most likely that the kiln was of 2nd century date and that the material outside its wall accumulated after it went into disuse. Features 501, 502 and 503 S. of the kiln and 506 to the SW. seem to have been backfilled after AD 240, probably during the second half of the 3rd century since diagnostic 4th-century material was absent here.

*E4*: Kiln 316 (Fig. 16) in area E4 appears to date to the 2nd century and was sealed by a dump of material in the 3rd century. Pit 322, which cut the kiln, was not closely dated. However, the material from it was consistent with a 2nd-century or later date. A pit and gully of post-medieval/modern date were also observed.

*E6*: (Fig. 17) The curvilinear gully 427 was early in date, perhaps assigned to the first half of the 2nd century, but other features in the area, including ditch 13, were mostly later, covering the period from the late 2nd-3rd century. Layer 434, to the N. of these features, again contained late 1st- to 2nd-century pottery.

*E7*: Phasing the ditches in Zone E proved extremely problematic because very few stratigraphic relationships were securely established. The pottery recovered from ditches 5 and 13 was broadly 2nd-century in date. Ditch 12 was spatially related to ditch 13 and may have been contemporary.

Ditches 2, 3, 6, 7 and 8 contained pottery with a broad 2nd- to 4th-century date range, though a number of these features may have been of 3rd-century date. Ditch 8 cut ditch 7, but other relationships were uncertain. Ditches 1 and 9 contained slightly later pottery, dating to the late 3rd-4th century.

While NE. to SW. ditches 2, 3 and 8 appeared to be earlier than ditch 1/11, the fact that they terminated at its line suggests that there was an earlier form of ditch 1/11 to which these other alignments related. The primary NE. to SW. ditch of this system was probably ditch 2, to which the E.-W. aligned ditch 4 was likely related. Spatial relationships suggest that ditches 7 and 10 were probably contemporary, but with unknown relationships to other features. Ditch 2 was likely to have been replaced by ditch 3, which then formed part of an irregular enclosure against the line of ditch 1/11. This incorporated ditch 6 together with either ditches 7 and 10 or 8 and 9. This enclosure was linked to ditch 4 to the W. by the short ditch 14.

## THE FINDS AND ENVIRONMENTAL EVIDENCE, ZONES C-E

Generally small quantities of finds were recovered during the excavation. Only pottery and fired clay occurred in significant (though not overwhelming) amounts. The non-ceramic finds were generally not examined in detail; many of them were poorly-stratified and do not add significantly to the understanding of the excavated areas. Objects clearly of post-medieval or modern date are not generally referred to. In the case of pottery and fired clay, the larger assemblages from Zones D and E were recorded in more detail than the corresponding material from Zone C. For the latter material, the information presented here is drawn from the records produced for the post-excavation assessment; the Zone D and E assessments provided no comparable datasets. Generation of such datasets in the post-excavation analysis programme left no room for the upgrading of the Zone C records.

### *Miscellaneous Finds*

Artefacts other than pottery from Zone C included three flint flakes, one from Roman ditch fill 24; two copper alloy strip/bracelet fragments (SF2 and SF7) from contexts 110 and 132 (the former a fill of the U-shaped gully, the latter a fill of the adjacent N.-S. Phase 2 ditch complex); a fragmentary iron object which was possibly

part of a knife blade (SF10); seven iron nails; and 23 hob nails (SF6) from ditch fill 129 at the SE. corner of the U-shaped gully. Only three tile fragments were recovered, one was a small Roman fragment from fill 110 and the other two were post-medieval pieces, probably intrusive in late Roman ditch fills 24 and 96.

Metal finds from Zones D and E consisted of a single copper alloy fragment, six iron nails and a lead fragment. Occasional fragments of glass, slag and mortar were probably all of recent date, while twelve struck flints were also recovered. The most significant small finds were five stone objects.

## WORKED STONE by RUTH SHAFFREY

Five items of worked stone, four fragments from rotary querns and one polished axe, were retained from Zones D and E. Two of the quern fragments were of Old Red Sandstone and one was of Millstone Grit, probably imported from the Pennines. Both materials were relatively common imports to the area during the Roman period. The fourth quern fragment was of quartz sandstone. This measured 310 mm. in diameter x 18 mm. minimum thickness with concentric wear patterns on one face. It may be from a small very well-worn rotary quern or another type of rotary grinding stone. An area of additional wear toward the tip of the axe suggests that it may have been re-used, possibly as a pot burnisher.

### *Catalogue*

1. Fragment of lower rotary quern. Pecked and slightly angled grinding surface. At least 92 mm. thick pebbly Quartz Conglomerate of the Old Red Sandstone from the Forest of Dean. Zone E context 381 SF119.
2. Fragment of upper rotary quern. Flat grinding surface and slightly curved, slightly rough upper surface. Biconical eye in the centre of a slight small hopper. 350 mm. diameter x 65 mm. max thickness. Old Red Sandstone as no. 1. Zone E context 376 SF118.
3. Fragment of upper rotary quern. Flat surfaces with slight wear on the grinding surface. The edges are straight but slightly angled in. At least 52 mm. thick. Millstone Grit, probably from the Pennines. Zone D context 634.
4. Possible rotary quern fragment. Very thin round stone. Grinding surface is smooth with evidence of concentric wear patterns. Both faces are slightly concave. 310 mm. diameter x 31 (max)-18 mm. thick. Quartz sandstone. Zone E context 315 SF114.
5. Complete, highly polished axe with slender tapering body and pointed butt. A slightly concave extra worn area present at the tip suggests additional use resulting in wear and further polishing. Greenstone, possibly from SW. England.[37] Zone E context 315 SF103.

## FIRED CLAY

Approximately 94 kg. of fired clay, most if not all derived from kiln structures from zones D and E, was recovered. The small group of material from Zone C comprised 116 fragments weighing *c.* 1940 g., recovered from contexts 9, 13, 18, 24, 64 and 110. This consisted of characteristic kiln debris material, mostly structural (i.e. kiln lining) with no fragments of kiln furniture such as firebars. Two contexts (13 and 64) contained fragments of possible 'dome plates'.

These characteristics were reflected in the larger Zone D and E assemblages. These were quantified by weight in relation to a series of broad fabric groups characterised by their principal inclusion types (using the same above-mentioned codes employed for definition of the prehistoric pottery fabrics). The quantities of these categories in Zones D and E are shown in Table 2.

The assemblage was dominated by sand-tempered fragments. These were mostly amorphous, deriving from the floors and walls of kiln structures, but they also included a number of pieces with two or more flat surfaces. In the few cases where an approximate thickness could be estimated, this was consistently in a range from 65-75 mm. The interpretation of these pieces, of which both oxidised and reduced versions occurred, is uncertain without more detailed analysis, but they do not seem to have been firebars. Curiously, no certain examples of oven floor fragments with vent holes were noted.

The only other numerically significant component of the assemblage was organic tempered (V fabric) fragments, the inclusions predominantly burnt out. These fragments were characteristically irregular in finish and thickness and derived from the upper parts of kiln superstructures. Fragments of individual 'dome plates', generally with a thickness range from 10-20 mm., were included in this material. These fragments were twice as common in Zone E as in Zone D, but the broad characteristics of the fired clay assemblages in the two zones were very similar.

37 Fiona Roe pers. comm.

TABLE 2. QUANTIFICATION OF FIRED CLAY FABRICS

| | *Quantity by weight (g.)* | | | |
|---|---|---|---|---|
| *Fabric Type* | *Zone D* | *Zone E* | *Total* | *%* |
| A (sand) | 37670 | 36402 | 74072 | 79.8 |
| C (calcareous) | | 96 | 96 | 0.1 |
| N (no inclusions) | 2687 | | 2687 | 2.9 |
| S (shell) | 48 | 518 | 566 | 0.6 |
| V (organic) | 4872 | 10549 | 15421 | 16.6 |
| *Total* | *45277* | *47565* | *92842* | |

The most striking individual fragment, however, was a dense, very dark grey/black moderately shell-tempered fabric from Zone E (context 469). This was the large part of a flat slab 20-21 mm. thick, with two parallel sides and one squared end, the fourth side, apparently a finished edge, was angled. The width was 97 mm. and the maximum length *c.* 160 mm. There were two lightly incised lines on one flat side and a deep cut on the other, all made before firing. The function of this object is uncertain and it has no obvious parallels within the industry.

## THE POTTERY

### *Quantities and methodology*

10,373 sherds of Roman pottery, weighing 201.65 kg., were recovered during the excavation. A further 4,464 sherds were recovered from the various evaluations of the site, 286 sherds from OA trenches, 2,026 (30 kg.) from Tempus Reparatum Trenches 1-21 and 2,152 sherds (26.7 kg.) from Trenches 22-26 located north of Zone E to the north of the boundary of the main development site. The evaluation material is not considered in detail here, but further information relating to it is contained in the project archive. As already indicated, this report is based on the assessment record for Zone C in which quantification was by sherd count and vessel count (based on rim sherds). The total weight of pottery per context was also noted. The Zone D and Zone E assemblages were more fully recorded, including weight and EVE (strictly rim equivalents) measures. Recording was carried out using the standard OA pottery recording system for Iron Age and Roman pottery from the region.[38] The pottery was quantified in terms of the ware groupings set out in this system and vessel types were recorded according to the typologies of Young[39] where possible. The pottery was quantified in terms of the more general form categories defined by the OA system where it was not possible to assign vessels to specific Young types. Limited aspects of decoration were noted along with an assessment of the date of each group.

### *Condition*

The pottery was in moderate condition. The overall average sherd weight, 19.4 g., was reasonably consistent across the excavated areas (Zone C, 19.3 g.; Zone D, 22.8 g.; Zone E, 18.0 g.). It was boosted in some cases by the presence of relatively large quantities of white ware mortarium sherds. These always have a significantly higher than average sherd weight. In Zone C, a few groups in which mortaria were absent had a low average sherd weight (below 10 g.).

Many sherds had very poorly preserved surfaces, a function largely of the soil conditions on the site. Because of the poorly preserved sherd surfaces, it was very difficult to assess the proportion of colour-coated and white-slipped wares. It is likely that many sherds in these fabrics had lost all traces of their surfaces. A partial solution to this problem is discussed below (see Fabrics). Very few sherds were positively identified as wasters, despite the likelihood that much of the material derived from pottery production waste. This situation is paralleled, however, amongst material from the production site at Lower Farm, Nuneham Courtenay[40] as well as elsewhere within the Blackbird Leys complex. At Lower Farm, as perhaps also at

[38] For a fuller account of some aspects of this system see Booth et al., op. cit. note 11, pp. 135-6.
[39] Young.
[40] Booth et al., op. cit. note 11, p. 135.

Blackbird Leys, the principal reason for the rejection of pottery may have been underfiring rather than overfiring (only the latter produces distorted vessels). Had underfiring been the case, this would have exacerbated the problem of the lack of preservation of the sherd surfaces.

### *Fabrics*

The pottery fabrics were defined using OA system codes. These allow fabric identification at one of three levels of precision; major ware group, principal subdivision of major ware group, or specific fabric within major ware group. Much of the Blackbird Leys material, particularly the coarse wares, was identified at the intermediate level of precision. Individual fabrics were identified where possible. The fabrics present on the site, and their codes and quantities, are listed below.

The pottery consisted almost entirely of locally produced fabrics, as would be expected with production derived material. Most of the major products of the Oxfordshire industry were present: white and white and red-slipped mortarium fabrics, white wares, red colour-coated wares and oxidised and reduced coarse wares. Only one possible sherd of parchment ware and four sherds of white-slipped ware were noted. The latter fabric could have been under-represented because of the preservation problems discussed above.

The problem of identification of colour-coated ware (fabric F51, see below) has already been mentioned. Likely sherds of this fabric were examined for minute traces of slip. The result of the total erosion of the slip was generally an oxidised sherd, effectively indistinguishable from the majority of oxidised coarse wares (ware group O) in terms of its fabric. In some cases, where such sherds occurred in forms that were characteristic of the F51 repertoire, they were assigned to an intermediate ware category, OF, indicating that, despite the total lack of a colour-coated surface, they were likely originally to have had such a surface. This identification was only possible for certain rim and other very distinctive feature sherds, however, and it is likely that some of the sherds assigned to the general oxidised ware category (ware group O10) were originally colour-coated. A very small number of reduced (unslipped) sherds were thought to be misfired colour-coated products and were similarly coded RF. The total figures for colour-coated ware given below, a combination of those for ware groups F51, OF and RF, probably underestimate the original importance of this ware group. A similar problem arose in Zone D in relation to mortaria. Distinguishing between small body sherds of fabrics M31 (white slipped) and M41 (red colour-coated) is impossible if the surfaces are missing. Sherds in this category were classified as OM.

The wares present in the assemblage, in ware group order, are as follows:

*Fine (colour-coated) wares*
*F*: Fine wares (?Oxfordshire) uncertain.
*F51*: Oxfordshire colour-coated ware.
*OF*: Probable Oxfordshire colour-coated ware (see above).
*RF*: Probable Oxfordshire colour-coated ware (see above).

*Mortarium fabrics*
*M22*: Oxfordshire white mortarium fabric.
*M31*: Oxfordshire white colour-coated fabric.
*M41*: Oxfordshire red colour-coated fabric (=F51).
*OM*: Oxidised Oxfordshire mortaria, either M31 or M41 (see above).

*White wares*
*W*: General (Oxfordshire) white wares.
*W10*: Oxfordshire fine white wares.
*W11*: Oxfordshire parchment ware.
*W12*: Oxfordshire white ware, fairly fine.
*W20*: Oxfordshire coarse sandy white ware.
*W23*: ?Oxfordshire 'burnt white ware'.

*White-slipped ware*
*Q21*: Oxfordshire white-slipped ware (as fabric M31).

*Oxidised coarse wares*
*O*: General (Oxfordshire) oxidised coarse wares.
*O10*: Oxfordshire fine oxidised wares.
*O20*: Oxfordshire coarse sandy oxidised wares
*O80*: Oxfordshire coarse-tempered oxidised wares.

*Reduced 'coarse' wares*
*R*: General (Oxfordshire) reduced coarse wares.
*R10*: Oxfordshire fine reduced ware.
*R20*: Oxfordshire coarse sandy reduced ware.
*R30*: Oxfordshire medium sandy reduced ware.
*R50*: Oxfordshire medium sandy reduced ware, black surfaces.
*R90*: Oxfordshire coarse-tempered reduced fabrics.

*Miscellaneous fabrics*
*S20*: South Gaulish Samian ware.
*S30*: Central Gaulish Samian ware.
*F52*: Nene Valley colour-coated ware.
*E10*: Shell-tempered 'Belgic type' coarse wares.
*E80*: Grog-tempered 'Belgic type' coarse wares.
*R39*: Alice Holt grey ware.
*B11*: Black-burnished ware (BB1).
*C*: General calcareous-tempered wares.
*C10*: Shell-tempered wares.
*C11*: Shell-tempered ware (late Roman).

Table 3 shows considerable variation in the representation of individual wares and ware groups between the three zones of the site. As long as it is accepted that the pottery in each zone represents production within or very close to that zone, these variations reflect differences of repertoire and of chronology between the zones, the latter aspect being demonstrated most clearly by the ranges of forms. In essence, the emphasis in Zone C was on fine ware and to a lesser extent mortarium production; the combined 'fine ware' fabrics totalled almost 50% of all sherds and the mortarium fabrics just over 18%. White wares were relatively scarce and neither oxidised nor reduced coarse wares were very important. In Zone D, fine wares comprised 28.5% and mortaria 16.3% of the assemblage. White wares were common and oxidised coarse wares were significantly better represented (28.6%) than reduced wares by sherd count. However, the figures for the weights of the two groups were similar. The Zone E assemblage was dominated by reduced and oxidised coarse wares (59.2% and 18.1% of sherds respectively), with white wares amounting to 11.8% and mortaria, here almost entirely in the standard white ware fabric, M22, constituting a further 7.2%. Although present, the incidence of fine wares in Zone E (3.3% of sherds) indicated limited production.

### *Vessel types*

Quantification of the vessels present in each Zone in terms of Young's typology is presented in Table 4.

The relative proportions of major vessel classes (Table 5) indicate some of the same contrasts between the different zone assemblages, albeit without the chronological precision given by individual types. In general terms, the Zone C and Zone D assemblages were relatively similar, and the high representation of mortaria was almost identical in the two groups. The level of jars (class C) and uncertain jar/bowl (class D) types together was also very similar (16.5% and 17.5% respectively) in both zones. These figures contrast markedly with that for Zone E (47.1%) and emphasise the broad correlation between the proportions of vessel types in relation to the importance of the ware groups in which they occurred. Zones C and D, with high representations of colour-coated wares, therefore had high levels of bowls (and to a lesser extent dishes), while the Zone E assemblage, dominated by reduced coarse wares, had a correspondingly high representation of jars. Bowls were less common here than in Zones C and D, but were still considerably well-represented, underlining the fact that they were widely produced in coarse as well as fine ware fabrics.

The principal exception to the general correlation between major ware group and vessel class representation was in relation to mortaria, the only type for which there is direct comparison between ware group and vessel numbers. These were consistently better represented as a proportion of vessel count (26.8%, 26.7% and 13.9% in Zones C to E respectively) than were their wares as a proportion of the total sherd count (18.2%, 16.3% and 7.2%). This reflects the characteristic breakage pattern of these vessels, with exactly one sherd in three in this assemblage being a rim, while rims form a lower proportion of the total sherds in all other ware groups.

Mortarium production in Zone E, while proportionally not as important as in Zones C and D, was nevertheless still significant. There, mortarium production was almost entirely confined to the white ware fabric M22. Other white wares were also important in Zone E, accounting for the highest representation of flagons (5.4% of rim count) from any zone. Zone E mortaria included eight examples of types dated AD 100-170, but the majority concentrated in the period from AD 180-300, with 58 vessels dated AD 180-240 and 48 dated AD 240-300. A further 15 vessels fell within the date range of AD 240-400 and there were single examples of C100 and possibly M23, dated AD 300-400 and AD 350-400 respectively. The identification and the date range of the latter may be regarded as uncertain. The 3rd-century emphasis is clear, suggesting that many of the examples of types M22 and C97, dated AD 240-400, probably belonged to the earlier part of that range.

TABLE 3. QUANTIFICATION OF ROMAN POTTERY FABRICS

| | *Zone C* | | *Zone D* | | *Zone E* | | *Total* | *%* |
|---|---|---|---|---|---|---|---|---|
| *Ware* | *Nosh* | *Wt* | *Nosh* | *Wt* | *Nosh* | *Wt* | *Nosh* | *Nosh* |
| F | | | 2 | 10 | | | 12 | 0.1 |
| F51 | 264 | | 623 | 19041 | 114 | 2511 | 1001 | 9.7 |
| OF | 317 | | 175 | 3905 | 94 | 3333 | 586 | 5.6 |
| RF | 4 | | | | | | 4 | |
| *F subtotal* | *585* | | *800* | *22956* | *208* | *5844* | *1593* | *15.4* |
| M22 | 127 | | 239 | 12916 | 422 | 24828 | 788 | 7.6 |
| M31 | 23 | | 20 | 1205 | 8 | 160 | 51 | 0.5 |
| M41 | 64 | | 101 | 3058 | 23 | 336 | 188 | 1.8 |
| OM | | | 98 | 1440 | 9 | 102 | 107 | 1.0 |
| *M subtotal* | *214* | | *458* | *18619* | *462* | *25426* | *1134* | *10.9* |
| W | | | 21 | 22 | 10 | 34 | 31 | 0.3 |
| W10 | | | 192 | 1885 | 547 | 7774 | 739 | 7.1 |
| W11(?) | 1 | | | | | | 1 | |
| W12 | 16 | | | | 4 | 60 | 20 | 0.2 |
| W20 | 9 | | 68 | 876 | 194 | 3895 | 271 | 2.6 |
| W23(?) | 27 | | 2 | 164 | 1 | 20 | 30 | 0.3 |
| *W subtotal* | *53* | | *283* | *2947* | *756* | *11783* | *1092* | *10.5* |
| Q21 | 1 | | | | 3 | 169 | 4 | |
| *Q subtotal* | *1* | | | | *3* | *169* | *4* | |
| O | | | 15 | 37 | 11 | 26 | 26 | 0.3 |
| O10 | 118 | | 696 | 8636 | 886 | 12887 | 1700 | 16.3 |
| O20 | | | 90 | 1236 | 231 | 3143 | 321 | 3.1 |
| O80 | 2 | | 2 | 38 | 25 | 982 | 29 | 0.3 |
| *O subtotal* | *120* | | *803* | *9947* | *1153* | *17038* | *2076* | *20.0* |
| R | | | 5 | 8 | 44 | 126 | 49 | 0.5 |
| R10 | 12 | | 131 | 2064 | 2739 | 35119 | 2882 | 27.8 |
| R20 | 10 | | | | 1 | 17 | 11 | 0.1 |
| R30 | 108 | | 318 | 7284 | 957 | 17102 | 1383 | 13.3 |
| R50 | 15 | | | | | | 15 | 0.1 |
| R90 | 2 | | 1 | 10 | 36 | 1676 | 39 | 0.4 |
| *R subtotal* | *147* | | *455* | *9366* | *3777* | *54040* | *4379* | *42.2* |
| S20 | | | 1 | 18 | 1 | 2 | 2 | |
| S30 | 1 | | | | 3 | 65 | 4 | |
| F52 | 2 | | | | 4 | 10 | 6 | 0.1 |
| E10 | | | 2 | 5 | | | 2 | |
| E80 | | | 1 | 15 | 6 | 288 | 7 | 0.1 |
| R39 | 1 | | 5 | 162 | | | 6 | 0.1 |
| B11 | 2 | | | | | | 2 | |
| C | | | | | 7 | 20 | 7 | 0.1 |
| C10 | | | 3 | 145 | 5 | 19 | 8 | 0.1 |
| C11 | 51 | | | | | | 51 | 0.5 |
| *Misc subtotal* | *57* | | *12* | *345* | *26* | *404* | *95* | *0.9* |
| Total | 1177 | 22765 | 2811 | 64181 | 6385 | 114704 | 10373 | (201650) |

In Zone C, in contrast, none of the 68 mortaria was earlier than AD 240. In Zone D there were two 2nd-century mortaria and six mortaria dated to AD 180-240 out of 163 vessels. The chronological emphasis of the mid 3rd- to 4th-century ranges is more difficult to determine. In Zone C, white ware mortaria comprised 15 mid-late 3rd-century and 22 mid 3rd- to 4th-century vessels, with a single possible example of M23. The earlier white and red-slipped mortarium types, however, appeared to be more common than the later ones: C97 (dated AD 240-400 but particularly common in the later 3rd century) outnumbered the solely 4th-century type C100 by 16:2, and WC5 outnumbered WC7 by 8:3. This may indicate a chronological facet of the assemblage. In Zone D, however, the C97:C100 ratio was 53:21 and the WC4/WC5:WC7 ratio was 4:9. The late 3rd-century white ware types were still more common than type M22 (with a wider date range of AD 240-400), at a ratio of 36:20. This contradictory evidence is difficult to interpret. It is clear that mid-late 3rd-century production was important in both Zones C and D, and that this extended into the 4th century, but how far into the 4th century is less clear.

The range of non-mortarium colour-coated ware types present was not diagnostic of chronology either. The most common types were C45 and C51, the former of which was arguably, like the latter, in production from the inception of the fine ware range *c.* AD 240.[41] On this basis, the small colour-coated assemblage from Zone E is relatively informative. Out of 49 datable vessels, there was a single example of type C94 dated exclusively to the 4th century and 31 examples of C45. Ten vessels (five each of C44 and C47) were of types assigned a start date of AD 270 by Young, though in neither case is it clear why this rather than a mid 3rd-century date is favoured. The marked mid-late 3rd-century emphasis of the mortaria in the Zone E assemblage suggests a chronological outline for these colour-coated ware vessels, and a later 3rd-century emphasis on type C45 would certainly be consistent with the interpretation of the evidence from Lower Farm, Nuneham Courtenay, where this was a very common type.[42] While it should not be expected that contemporaneous fine ware assemblages would have the same composition across the industry, the evidence both of Lower Farm and of Zone E strongly suggests that groups dominated by C45 were characteristic of the later 3rd century.

The Zone C assemblage contained 29 examples of C45, but this was marginally outnumbered as the most common colour-coated form by C51 (32 vessels). The 101 non-mortarium colour-coated vessels from this zone included 21 (excluding C45) assigned a date range of AD 270-400 by Young, including 10 examples and a variant of C47, which was noted as relatively common in the Zone E assemblage and for which a late 3rd-century date may therefore be appropriate. A small but probably significant number of the types represented are dated after AD 300 by Young (C68 (1), C71 (3), C81 (4) and C83 (1)). C75 and C84, of which single examples were present, dated after AD 325 and 350 respectively. The dating of C46 to after AD 340 seems less secure, as it is effectively a variant form of C45. Five rims were tentatively assigned to this type. In general, the group is likely to have extended well into the 4th century, and probably at least as far as the middle of the 4th century, potentially giving a date range of up to 100 years for activity in this part of the site.

It is unclear whether the roughly equivalent representation of types C45 and C51 in Zone C reflects the 4th-century component in this group. C51, despite the broad date of AD 240-400 assigned to it by Young, was significantly more common in the 4th century. If so, a similar ratio observed in Zone D (63 examples of C45 and 51 examples of C51) may indicate a similar overall date range. Again, out of 207 vessels, 14 had an entirely 4th-century date range. Two examples of C75 dated after AD 325 and six vessels (C14 (2) and C84 (4)) dated after AD 350. The similarity with Zone C was quite marked. Characteristics such as a relative absence of stamped and painted decoration support the view that production in the second half of the 4th century was at a much reduced level or short lived, but that it continued at least as far as the middle of the century seems extremely likely.

With regard to other aspects of the fine ware assemblage, seven examples of stamped bases were noted, all most likely from type C45. There were two further examples of C45 with stamps from the evaluation of Zone C, though none were found in the excavation of this area. Two very unusual colour-coated vessels were found in Zone C. These were apparently a hybrid form C47/75, and a variant of type C9 with a hollow handle and a projection of the neck into the body of the vessel to form a puzzle jug (Fig. 18).

The oxidised and reduced coarse ware components of the assemblage amounted (in Zone C) to 22.7% of the total assemblage and were generally unremarkable. Coarse ware forms were mostly jars, bowls and dishes, though beakers did occur in fabric O10. Examples of relatively unusual coarse ware types were an R75 (?dish) in fabric R30 and a large O58 (cheese press) in fabric O10. A complete narrow-necked globular beaker (not paralleled in Young's corpus) was found in fabric O10. In Zone D, these wares totalled 45.8% of sherds with fabric group O10 forming the largest single component in terms of sherd count. Very few of these sherds were assigned to specific Young types, however, jars, bowls and dishes were all represented. Among the reduced coarse wares, a number of dish types were identified. Of these, R53 (dated to AD 240-400) was well-represented with 25 examples.

41 Ibid. 163 (*pace* Young, 158).
42 Ibid. 139.

TABLE 4. QUANTIFICATION OF VESSEL TYPES

| *Type* | *Date range (after Young with modifications indicated*)* | *OA type* | *Zone C* | | *Zone D* | | *Zone E* | | *Total* | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | *No.* | *%* | *No.* | *%* | *No.* | *%* | *No.* | *%* |
| C8 | 240-400 | BA | 1 | 0.4 | | | | | 1 | 0.1 |
| C9var | ?240-400 | BA | 1 | 0.4 | | | | | 1 | 0.1 |
| C14 | ?350-400 | BC | | | 2 | 0.3 | | | 2 | 0.1 |
| C16 | 270-400 | CC | 6 | 2.4 | | | | | 6 | 0.3 |
| C18 | 270-400 | CM | | | 14 | 2.3 | | | 14 | 0.7 |
| C39 | ? | E | | | | | 1 | 0.1 | 1 | 0.1 |
| C40 | ? | JB | 1 | 0.4 | | | | | 1 | 0.1 |
| C41 | 300-400 | JB | | | 1 | 0.2 | | | 1 | 0.1 |
| C43 | ? | JB | | | | | 1 | 0.1 | 1 | 0.1 |
| C44 | 270-350 | HC | | | 7 | 1.1 | 5 | 0.5 | 12 | 0.6 |
| C45 | *240-400 | HC | 29 | 11.4 | 63 | 10.3 | 31 | 2.9 | 123 | 6.4 |
| C46 | *240-400 | HC | 5 | 2.0 | | | | | 5 | 0.3 |
| C47 | 270-400 | JB | 10 | 3.9 | 29 | 4.8 | 5 | 0.5 | 44 | 2.3 |
| C47/75 | ?270-400 | H | 1 | 0.4 | | | | | 1 | 0.1 |
| C48 | 270-400 | JB | 4 | 1.6 | | | | | 4 | 0.2 |
| C49 | 240-400 | JB | | | 20 | 3.3 | 4 | 0.4 | 24 | 1.2 |
| C51 | 240-400 | HC | 32 | 12.6 | 51 | 8.4 | 2 | 0.2 | 85 | 4.4 |
| C55 | 240-400 | HC | | | 1 | 0.2 | 1 | 0.1 | 2 | 0.1 |
| C68 | 300-400 | HC | 1 | 0.4 | 2 | 0.3 | | | 3 | 0.2 |
| C71 | 300-400 | HC | 3 | 1.2 | 1 | 0.2 | | | 4 | 0.2 |
| C75 | 325-400 | HD | 1 | 0.4 | 2 | 0.3 | | | 3 | 0.2 |
| C81 | 300-400 | HA | 4 | 1.6 | 8 | 1.3 | | | 12 | 0.6 |
| C83 | 300-400 | HA | 1 | 0.4 | 2 | 0.3 | | | 3 | 0.2 |
| C84 | 350-400 | HA | 1 | 0.4 | 4 | 0.7 | | | 5 | 0.3 |
| C94 | 300-400 | JA | | | | | 1 | 0.1 | 1 | 0.1 |
| C97 | 240-400 | KD | 16 | 6.3 | 53 | 8.7 | 9 | 0.8 | 78 | 4.1 |
| C100 | 300-400 | KE | 2 | 0.8 | 21 | 3.4 | 1 | 0.1 | 24 | 1.2 |
| M2 | 100-170 | KA | | | 2 | 0.3 | 7 | 0.7 | 9 | 0.5 |
| M6 | 100-170 | KA | | | | | 1 | 0.1 | 1 | 0.1 |
| M10 | 180-240 | KB | | | 1 | 0.2 | 5 | 0.5 | 6 | 0.3 |
| M11 | 180-240 | KB | | | | | 16 | 1.5 | 16 | 0.8 |
| M12 | 180-240 | KB | | | 5 | 0.8 | 1 | 0.1 | 6 | 0.3 |
| M13 | 180-240 | KD | | | | | 1 | 0.1 | 1 | 0.1 |
| M14 | 180-240 | KD | | | | | 29 | 2.7 | 29 | 1.5 |
| M15 | 180-240 | KD | | | | | 4 | 0.4 | 4 | 0.2 |
| M16 | 180-240 | KD | | | | | 2 | 0.2 | 2 | 0.1 |
| M17 | 240-300 | KE | 7 | 2.7 | 12 | 2.0 | 8 | 0.7 | 27 | 1.4 |
| M18 | 240-300 | KE | 5 | 2.0 | 20 | 3.3 | 29 | 2.7 | 54 | 2.8 |
| M20 | 240-300 | KE | 3 | 1.2 | 4 | 0.7 | 10 | 0.9 | 17 | 0.9 |
| M22 | 240-400 | KE | 22 | 8.6 | 20 | 3.3 | 5 | 0.5 | 47 | 2.4 |
| M23 | ?350-400 | KE | 1 | 0.4 | | | 1 | 0.1 | 2 | 0.2 |
| WC4 | 240-300 | KE | | | 3 | 0.5 | 1 | 0.1 | 4 | 0.2 |
| WC5 | 240-300 | KE | 8 | 3.1 | 1 | 0.2 | | | 9 | 0.5 |
| WC7 | 240-400 | KE | 3 | 1.2 | 9 | 1.5 | 1 | 0.1 | 13 | 0.7 |
| W2 | 100-240 | B | | | | | 2 | 0.2 | 2 | 0.1 |
| W5 | 100-240 | B | | | | | 5 | 0.5 | 5 | 0.3 |
| W6 | 150-240 | B | | | 1 | 0.2 | 8 | 0.7 | 9 | 0.9 |
| W8 | 100-240 | B | | | | | 4 | 0.4 | 4 | 0.2 |
| W9 | 240-300 | BB | | | 1 | 0.2 | 1 | 0.1 | 2 | 0.1 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| W15 | 240-300 | BA | | | 1 | 0.2 | 10 | 0.9 | 11 | 0.6 |
| W18 | 240-300 | BA | | | | | 1 | 0.1 | 1 | 0.1 |
| W21 | 240-300 | BA | | | 1 | 0.2 | 4 | 0.4 | 5 | 0.9 |
| W27 | 300-400 | BD | 1 | 0.4 | | | | | 1 | 0.1 |
| W33 | 50-400 | CD | | | | | 2 | 0.2 | 2 | 0.1 |
| W34 | 240-400 | CD | | | | | 1 | 0.1 | 1 | 0.1 |
| W37 | 100-200 | ED | | | | | 1 | 0.1 | 1 | 0.1 |
| W38 | 100-200 | EC | | | | | 1 | 0.1 | 1 | 0.1 |
| W42 | 150-300 | JB | | | | | 1 | 0.1 | 1 | 0.1 |
| W44 | 100-240 | IA | | | | | 1 | 0.1 | 1 | 0.1 |
| W54 | 100-300 | HC | | | | | 2 | 0.2 | 2 | 0.1 |
| BW2 | 240-400 | C | 2 | 0.8 | 1 | 0.2 | 1 | 0.1 | 4 | 0.2 |
| O1 | 240-300 | BA | | | | | 1 | 0.1 | 1 | 0.1 |
| O2 | 240-300 | BA | | | | | 2 | 0.2 | 2 | 0.1 |
| O6 | 240-400 | CC | | | | | 1 | 0.1 | 1 | 0.1 |
| O7 | 300-400 | CC | 1 | 0.4 | | | | | 1 | 0.1 |
| O11 | 300-400 | C | | | | | 2 | 0.2 | 2 | 0.1 |
| O14 | 300-400 | CK | | | 1 | 0.2 | | | 1 | 0.1 |
| O18 | 50-150 | ED | | | | | 3 | 0.3 | 3 | 0.2 |
| O27 | 240-400 | HD | | | | | 3 | 0.3 | 3 | 0.2 |
| O29 | 240-400 | HB | | | | | 5 | 0.5 | 5 | 0.3 |
| O34 | 100-200 | JA | | | | | 1 | 0.1 | 1 | 0.1 |
| O35 | 240-400 | JA | | | | | 1 | 0.1 | 1 | 0.1 |
| O37 | 240-400 | JA | | | 1 | 0.2 | 2 | 0.2 | 3 | 0.2 |
| O39 | 70-150 | HC | | | | | 7 | 0.7 | 7 | 0.4 |
| O41 | 100-300 | JA | | | | | 8 | 0.8 | 8 | 0.4 |
| O44 | 240-400 | JB | | | | | 1 | 0.1 | 1 | 0.1 |
| O47 | 240-400 | HC | | | 2 | 0.3 | | | 2 | 0.1 |
| O58 | ? | MF | 1 | 0.4 | | | | | 1 | 0.1 |
| R7 | 130-240 | BD | | | | | 1 | 0.1 | 1 | 0.1 |
| R9 | 300-400 | BC | 1 | 0.4 | | | | | 1 | 0.1 |
| R10 | 250-400 | BC/CC | | | | | 1 | 0.1 | 1 | 0.1 |
| R12 | 180-240 | CC | | | 2 | 0.3 | 11 | 1.0 | 13 | 0.7 |
| R13 | 300-400 | CC | | | 2 | 0.3 | | | 2 | 0.1 |
| R15 | 50-400 | CC | | | | | 1 | 0.1 | 1 | 0.1 |
| R17 | 240-400 | CC | | | | | 1 | 0.1 | 1 | 0.1 |
| R23 | 50-400 | CD | | | | | 3 | 0.3 | 3 | 0.2 |
| R24 | 50-400 | CD | | | 1 | 0.2 | 9 | 0.8 | 10 | 0.5 |
| R25 | 50-200 | CF | | | | | 1 | 0.1 | 1 | 0.1 |
| R26 | ?50-200 | CF | | | | | 1 | 0.1 | 1 | 0.1 |
| R27 | 100-400 | CK | | | | | 1 | 0.1 | 1 | 0.1 |
| R30 | 180-400 | C | 1 | 0.4 | | | | | 1 | 0.1 |
| R31 | 50-150 | EH | | | | | 29 | 2.7 | 29 | 1.5 |
| R34 | 100-200 | EF | | | | | 1 | 0.1 | 1 | 0.1 |
| R38 | 50-400 | HD | | | | | 5 | 0.5 | 5 | 0.3 |
| R39 | ?50-200 | HD | | | | | 1 | 0.1 | 1 | 0.1 |
| R41 | 100-200 (80-400) | HC | | | | | 15 | 1.4 | 15 | 0.8 |
| R43 | 100-300 | HB/JA | | | | | 5 | 0.5 | 5 | 0.3 |
| R44 | 100-300 | HB | | | 1 | 0.2 | 3 | 0.3 | 4 | 0.2 |
| R45 | 100-300 | HB | | | 1 | 0.2 | | | 1 | 0.1 |
| R46 | 100-300 | HB/JA | | | | | 2 | 0.2 | 2 | 0.1 |
| R47 | 200-400 | HB/JA | | | | | 2 | 0.2 | 2 | 0.1 |
| R48 | 200-400 | JB | | | | | 1 | 0.1 | 1 | 0.1 |
| R49 | 50-100 | JB | | | 2 | 0.3 | 3 | 0.3 | 5 | 0.3 |
| R51 | 180-250 | JA | | | 1 | 0.2 | 2 | 0.2 | 3 | 0.2 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| R52 | 180-300 | JA | | | 1 | 0.2 | 21 | 2.0 | 22 | 1.1 |
| R53 | 240-400 | JA | | | 25 | 4.1 | 4 | 0.4 | 29 | 1.5 |
| R55 | 150-400 | JA | | | 1 | 0.2 | | | 1 | 0.1 |
| R56 | 100-200 | HA | | | | | 4 | 0.4 | 4 | 0.2 |
| R57 | 100-400 | HA | | | 1 | 0.2 | 3 | 0.3 | 4 | 0.2 |
| R60 | 70-120 | JA | | | | | 3 | 0.3 | 3 | 0.2 |
| R62 | 100-200 | FB | | | | | 3 | 0.3 | 3 | 0.2 |
| R63 | 100-150 | H | | | | | 1 | 0.1 | 1 | 0.1 |
| R64 | 80-200 | HA | | | | | 4 | 0.4 | 4 | 0.2 |
| R72 | 300-400 | JA | | | | | 1 | 0.1 | 1 | 0.1 |
| R75 | 300-400 | H | 1 | 0.4 | 2 | 0.3 | | | 3 | 0.2 |
| R76 | 100-400 | L | | | 2 | 0.3 | 3 | 0.3 | 5 | 0.3 |
| R78 | 100-400 | MF | | | | | 4 | 0.4 | 4 | 0.2 |
| Others | | | 78 | 30.7 | 200 | 32.8 | 641 | 60.8 | 920 | 47.9 |
| Total | | | 254 | | 610 | | 1055 | | 1919 | |

TABLE 5. QUANTIFICATION OF OXFORDSHIRE VESSEL CLASSES (BY VESSEL COUNT)

| | *Zone C* | | *Zone D* | | *Zone E* | | *Total* | |
|---|---|---|---|---|---|---|---|---|
| *Type* | *No.* | *%* | *No.* | *%* | *No.* | *%* | *No.* | *%* |
| B Flagons | 5 | 2.0 | 7 | 1.1 | 57 | 5.4 | 69 | 3.6 |
| C Jars | 29 | 11.4 | 102 | 16.7 | 474 | 44.9 | 605 | 31.5 |
| D Jar/bowls | 13 | 5.1 | 5 | 0.8 | 23 | 2.2 | 41 | 2.1 |
| E Beakers | 8 | 3.1 | 1 | 0.2 | 50 | 4.7 | 59 | 3.1 |
| F Cups | | | | | 3 | 0.3 | 3 | 0.2 |
| H Bowls | 90 | 35.4 | 186 | 30.5 | 194 | 18.4 | 470 | 24.5 |
| I Bowl/dishes | 14 | 5.5 | 56 | 9.2 | 34 | 3.2 | 104 | 5.4 |
| J Dishes | 20 | 7.9 | 82 | 13.4 | 58 | 5.5 | 160 | 8.3 |
| K Mortaria | 68 | 26.8 | 163 | 26.7 | 147 | 13.9 | 378 | 19.7 |
| L Lids | | | 3 | 0.5 | 4 | 0.4 | 7 | 0.4 |
| M Miscellaneous | 1 | 0.4 | 2 | 0.3 | 6 | 0.6 | 9 | 0.5 |
| Z Unknown | 6 | 2.4 | 3 | 0.5 | 5 | 0.5 | 14 | 0.7 |
| Total | 254 | | 610 | | 1055 | | 1919 | |

As already indicated, coarse wares were a much more important part of the assemblage in Zone E, where reduced fabrics were significant. Bowls and dishes were the principal forms in oxidised fabrics, but there was a much wider range of types in reduced fabrics. These ranged from narrow-mouthed jars (type R12) to dishes, occasional lids and cheese-presses (type R78). The individual beaker form R31 was common (29 examples), indicating that production was well-established in the first half of the 2nd century. Among types with a much wider date range, the bowl form R41 may have been typical. However, the bulk of examples were assigned by Young to the 2nd century, as seems likely here, despite having an overall date range of AD 80-400.[43] In general, jars were the most important part of the reduced ware output in Zone E, although most were assigned to generalised forms rather than specific types in the Oxfordshire series.

*Pottery associated with kilns*

Relatively small assemblages were derived from most of the pottery kilns. The mixed dating evidence deriving from some of this material has been indicated above. This underlines the point that pottery recovered from kiln structures cannot be assumed to directly reflect the products of those kilns. Much of the material may have derived from dumping related to adjacent areas of activity once the kiln had fallen out of use.

[43] Young, 220.

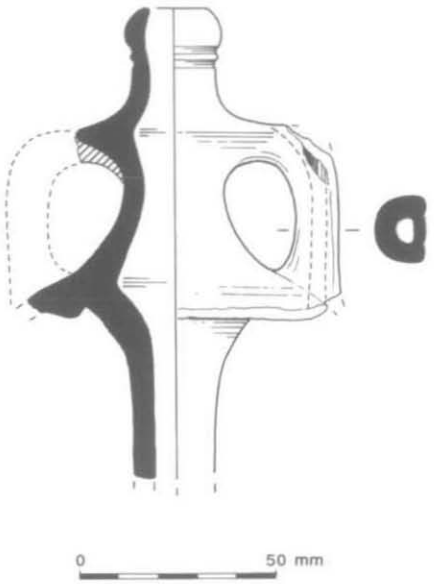


Fig. 18. Zone C colour-coated ware puzzle jug.

*Zone D*: One deposit (605) in Kiln 606 (Fig. 12) contained a group dominated by white wares and white mortarium types, principally M12, dated AD 180-240. Other context groups associated with this kiln included colour-coated sherds, but also possibly represented later dumped material. The assemblages associated with kilns 558 (Fig. 12) and 640 were insufficiently large or homogenous to suggest the nature of production, though both features appear to have been of mid 3rd century or later date.

*Zone E*: The principal fabrics associated with all three kilns in Zone E were reduced coarse wares R10 and R30, supplemented in kilns 316 (Fig. 16) and 376 (Fig. 14) by small quantities of white ware mortaria. Other white wares formed a minor component of the pottery from kilns 376 and 490 (Fig. 15), and in the latter kiln these were also associated with the fine oxidised fabric O10, but again in small quantities.

### *Chronology*

The overall chronological range of the site suggested by the pottery extends potentially from the mid-late 1st century to the later 4th century. On balance, however, there is no conclusive evidence for pottery production in the 1st century. Five vessels in Zones D and E were identified as type R49, dated to AD 50-100,[44] but it is not certain that any of these examples were sufficiently close to the Gallo-Belgic prototype to justify a specifically 1st-century date.

In Zone E, production was established in the first half of the 2nd century and continued thereafter to the end of the 3rd century. There is little evidence to show that production continued after this time. In Zone D, there are indications of 2nd-century activity, albeit probably at a low level. A number of types were assigned to the period AD 180-240 and the volume of production may have increased at this time, but it is clear that the second half of the 3rd century was the peak period of production. This activity then continued well into the 4th century, although identification of the end of production is uncertain (a date after AD 350 seems likely).

In Zone C, in contrast, the balance of the fabrics and the great majority of vessels present were assigned to the late 3rd century and later. It is likely that production did not commence until the middle of the 3rd century (five very small coarse ware groups were possibly of 2nd-century date, but these only contained 17 sherds between them and their dating cannot be considered secure). Pottery production appears to have been intensive in the period before AD 300, but seems to have continued after that time at least to the middle of the 4th century. In this zone, the evidence of the locally-produced material is supported by that of the

[44] Ibid. 222.

non-local fabrics, all of which are consistent with a late Roman date. The principal fabric, C11, is more likely to have been produced in the 4th century than earlier.

In Zone C, 13 of the 31 contexts that produced pottery had assemblages dated to the 4th century. These included all the large ware groups from the site (containing almost 75% of the total sherds). All the other significant ware groups (13) can be assigned to the mid 3rd century or later, but are dated within a range from *c.* AD 250-400.

## ECOFACTUAL MATERIAL

### ANIMAL BONE by BETHAN CHARLES

The analysis of animal bone included 310 fragments from Zone C and a further 650 fragments from Zones D and E. These totals include modern breakages, thus the original fragment totals would have been much lower. Apart from the high degree of fragmentation in some context groups, the bone is in reasonable condition. It derives mostly from Roman ditch fills and presumably reflects a domestic rubbish component in the overall finds assemblage. None of the material was examined further.

### CARBONISED AND OTHER PLANT REMAINS

Soil samples were taken from a number of contexts. Four samples from Zone C were scanned for ecofactual material, particularly carbonised plant remains and charcoal, considered potentially important for understanding a number of aspects of the operation of the Roman pottery industry which have hitherto received little consideration, such as woodland management. The latter question was examined in more detail in a small group of samples from Zones D and E (see below).

The flots from the Zone C samples were assessed by Dr. Mark Robinson (University of Oxford). The assessment showed that charred remains were preserved in low concentrations at the site. The most important of these samples was from the upper fill (13) of pit 11. The dominant content was wood charcoal, mostly oak (*Quercus*). A small number of seeds (approximately 15 cereal grains, including oat and barley, and some weed seeds including vetch or tare) were thought to be consistent with the late stages of crop processing, possibly in a domestic setting. A small amount of comminuted coal, some of which was cokified, may indicate recent contamination. Material from context 109 in ditch 19 was similar in general character.

### THE WOOD CHARCOAL FROM ZONES D AND E by DANA CHALLINOR

A total of five samples were selected for charcoal analysis from two stokeholes, a kiln deposit and a pit associated with the pottery kilns. All of these features were located in Zone D and dated to the mid-late 3rd century except for one of the stokehole deposits. This deposit was from kiln 376 (Fig. 14) in Zone E, which may have been as early as the later 2nd century, although this is uncertain. The samples taken were 10 litres in size, with the exception of sample 12, which measured 20 litres. The aims of the charcoal analysis were to determine the taxonomic composition of deposits relating to the pottery industry and to investigate the evidence for fuelwood use and woodland management practices.

#### *Methodology*

The samples were processed by mechanical flotation in a modified Siraf machine for the recovery of charred plant remains, with the flot collected on a 250 $\mu$m. mesh. The dried flots were passed through 4 mm. and 2 mm. sieves. Charcoal fragments were examined on the basis of their anatomical features, revealed by fracturing to expose fresh transverse, tangential and radial surfaces. These were mounted in plasticine on a slide and viewed using a Meiji incident-light microscope at up to x400 magnification. Identifications were made with reference to Schweingruber[45] and modern reference material. All of the charcoal from the >4 mm. fraction was identified and the charcoal held in the 2 mm. sieve was scanned under a microscope at x20 magnification examining random pieces in transverse section. No additional taxa were identified. Other plant macro-remains were not analysed but the flots were scanned for the presence of material and are mentioned in the text where relevant. Nomenclature and taxonomic order follows Stace.[46]

[45] F.H. Schweingruber, *Microscopic Wood Anatomy* (Swiss Federal Institute for Forest, Snow and Landscape Research, 3rd edn. 1990).

[46] C. Stace, *New Flora Of The British Isles* (2nd edn. 1997).

*Results*

The results by fragment count are given in Table 6. Seven taxa were positively identified: *Ulmus* sp. (elm), *Quercus* sp. (oak), *Castanea sativa* (sweet chestnut), *Corylus avellana* (hazel), Maloideae (hawthorn etc), *Ilex aquifolium* (holly) and *Fraxinus excelsior* (ash). *Ulmus* and *Quercus* are only identifiable to the generic level as the different species cannot be distinguished on anatomical characteristics alone. *Corylus* and *Alnus glutinosa* (alder) are only distinguishable by the size and length of their scalariform perforation plates; in some instances the perforation plates had burnt away and were not visible and such fragments were recorded as *Corylus/Alnus*. Given the absence of positively identified *Alnus glutinosa* in the samples, these charcoal fragments are likely to be of *Corylus avellana* and a single category has been used in the figures. The Maloideae are a sub-family of the Rosaceae which includes *Crataegus* (hawthorn), *Malus* (apple), *Pyrus* (pear) and *Sorbus* (rowan, whitebeam). These genera are anatomically very similar, and any charcoal fragments have, therefore, been recorded as a single group.

There was no evidence of roundwood in the samples but the fragments were generally very small in size. In some cases sediments had infused the tissues of the charcoal fragments, leaving thin layers deposited on the surfaces of the cell walls, making the charcoal difficult to identify. Some charcoal was evidently exposed to high temperatures resulting in badly distorted and vitrified cell patterns. In these samples there was a high level of indeterminate fragments.

TABLE 6. QUANTIFICATION OF WOOD CHARCOAL BY FRAGMENT COUNT

| Phase | | AD 180-240 | AD 240-400 | | | |
|---|---|---|---|---|---|---|
| Feature type | | stokehole | stokehole | | pit | kiln |
| Feature number | | 377 | 609 | 636 | 558 | |
| Sample number | | 2 | 8 | 10 | 12 | 13 |
| Context number | | 385 | 602 | 604 | 651 | 552 |
| *Ulmus* sp. | elm | | | | | 7 |
| *Quercus* sp. | oak | 6 | | | 4 | 1 |
| *Castanea sativa* | sweet chestnut | 15 | | | | |
| *Corylus avellana* | hazel | | | | 8 | |
| *Alnus/Corylus* | alder/hazel | | | | 6 | |
| Maloideae | hawthorn, apple, pear etc | 9 | 2 | 1 | 14 | 12 |
| *Ilex aquifolium* | holly | | | | | 107 |
| *Fraxinus excelsior* | ash | 23 | 8 | 7 | 1 | 13 |
| Indeterminate | | 14 | 1 | | 9 | |
| Total fragments | 67 | 11 | 8 | 42 | 140 | |

A quantity of charred plant remains was noted in sample 2 from stokehole 377, in particular *Triticum spelta* (spelt wheat) grain and arable weeds (e.g. *Agrostemma githago*, corncockle). Sample 12 contained a large amount of charred material which may have been cereal grain but the vitrified condition suggested a high degree of burning and the remains were not identifiable.

*Discussion*

There are various materials which can be used to fuel a pottery kiln (dung, peat, straw, coal, wood) but it is clear from the quantity of charcoal that wood was the primary fuel used in the kilns at Blackbird Leys. This equates with the evidence from other sites in the region[47] and with Romano-British kilns in general.[48] It is

[47] E.g. R. Gale, 'The Charcoal', in C.J. Evans, L. Jones and P. Ellis, *Severn Valley Ware Production at Newland Hopfields: Excavation of a Romano-British kiln site at North End Farm, Great Malvern, Worcestershire in 1992 and 1994* (BAR Brit. Ser. 313, 2000), 68.

[48] V.G. Swan, *The Pottery Kilns of Roman Britain* (RCHM Suppl. Ser. 5, 1984), 7.

not possible to determine from archaeological charcoal whether the wood was used directly as fuel or converted to charcoal beforehand. However, there is no advantage to using charcoal as a fuel for pottery kilns since wood provides an adequate firing temperature and, given the relatively low return of converting wood to charcoal (average ratio of 6:1),[49] it would appear to be an unnecessary use of resources. The cereal remains recovered in stokehole 377 are comparable to material found in other Romano-British kiln deposits.[50] The presence of such material is generally taken as evidence of the combined use of fuels; chaff and straw from crop processing waste could have been used as kindling or to raise the temperature of the kiln.[51] However, the material from these samples was predominantly cereal grain, rather than processing waste, in contrast to the situation observed in Zone C, where the samples did not derive from features immediately associated with kilns. In the Zone D and E samples, however, it is possible that grain predominated amongst the cereal remains as the result of differential combustion.

The taxa identified from the Blackbird Leys (Fig. 19) charcoal are likely to have come from local woodland, as firewood is invariably drawn from local resources.[52] The charcoal assemblage indicates the presence of mixed deciduous woodland, with *Fraxinus* (ash), *Quercus* (oak) and *Ulmus* (elm) and a shrubby understorey of *Corylus*, Maloideae and *Ilex*. The presence of *Castanea sativa* (sweet chestnut) in one of the samples (stokehole 377) is of particular interest since this species was a Roman introduction to Britain.[53] It would have been hard to grow it on the gravels, the Oxford Clay or the Corallian Limestone but it would probably have grown well on the better-drained sands in the Blackbird Leys area. Identifications of *Castanea* are relatively rare in Britain; however, this evidence suggests that this species was introduced to the Oxford region by the mid 3rd century. This may be the first confirmed identification for the Roman period for this region.

Given that Oxford was the site of a sizeable pottery industry from the 2nd century onward, it seems likely that the quantity of fuel needed would have required a managed system to ensure an adequate fuel supply. Indeed, it is generally assumed that woodland management would have been widely practised to provide for the timber requirements of the Roman pottery (and other) industries.[54] Many of the taxa recovered in the samples would have been suitable for coppicing, a technique discussed by several Roman authors; for example, Columella gives recommendations for the coppicing of oak and chestnut.[55] Unfortunately, the fragments of charcoal from Blackbird Leys were too small to provide direct evidence of coppicing. It may be noted, however, that the range of species used to fire the kilns at this site does not suggest systematic woodland management.

Indeed, the range of taxa recovered from the Blackbird Leys samples indicates that fuel selection was based on the general availability of wood rather than preference or specific selection. There are distinct variations between the composition of assemblages from different features. Many of the taxa are only present in one feature; kiln 558 (Fig. 12) is dominated by *Ilex* (holly) while *Corylus* (hazel) is only present in pit 636. *Fraxinus* (ash) and Maloideae (hawthorn type) are the only taxa present in all deposits. *Fraxinus* has excellent burning properties, providing a long-lasting, even heat and the genera of the Maloideae family would be suitable for kindling purposes.[56] What is surprising is that *Fraxinus* is dominant in only one sample (stokehole 609) and *Quercus* (oak), which is also a good fuelwood, is infrequent. This suggests a lack of consistency in fuelwood selection.

[49] R. Gale, 'Charcoal' [from Pomeroy Wood], in A.P. Fitzpatrick, C.A. Butterworth and J. Grove (eds.), *Prehistoric and Roman Sites in East Devon: The A30 Honiton to Exeter Improvement DBFO, 1996-0, ii: Romano-British Sites* (Trust for Wessex Archaeol. 1999), 383.

[50] E.g. P. Murphy, 'Plant Remains', in J. Plouviez, 'A Romano-British Pottery Kiln at Stowmarket', *Proc. of Suffolk Inst. of Archaeol.* 37 (1989), 8-10; R. Gale, 'Charcoal', in S. Bates, *The Excavation of Romano-British Pottery Kilns at Ellingham, Postwick and Two Mile Bottom, Norfolk, 1995-6* (E. Anglian Archaeol. Occ. Paper, forthcoming).

[51] Gale, op. cit. note 50.

[52] C.M. Shackleton and F. Prins, 'Charcoal Analysis and the 'principle of least effort' – a conceptual model', *Jnl. of Archaeol. Science*, 19 (1992), 631-7.

[53] O. Rackham, *The History of the Countryside* (1997), 54.

[54] E.g. M. Robinson and B. Wilson, 'A Survey of Environmental Archaeology in the South Midlands', in H.C.M. Keeley (ed.), *Environmental Archaeology: a Regional Review, ii* (HBMC Occ. Paper no. 1, 1987), 16-100.

[55] Columella, *De re rustica*, xiii.

[56] H.L. Edlin, *Woodland Crafts in Britain: An Account of the Traditional Uses of Trees and Timbers in the British Countryside* (1949), 156.

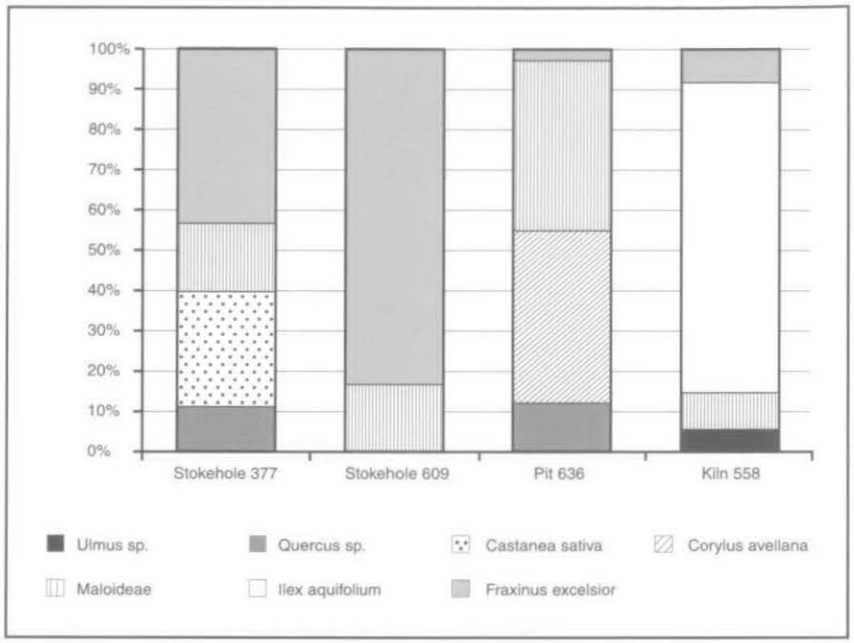


Fig. 19. Composition of charcoal taxa in analysed features.

A similar range of taxa have been identified at other Roman kiln sites in Britain.[57] All of the species identified at Blackbird Leys, with the exception of *Castanea*, have been found in other kiln deposits. At Heath Farm, Gale suggests that there was evidence to indicate preferential use of species in the different kilns. Variation in kiln design could have required variation in fuel, however, there is no evidence at Blackbird Leys to suggest that the kilns differed widely in form and structure.

In conclusion, the analysis of the material from Blackbird Leys demonstrates that wood was the primary fuel used, possibly with cereal debris as a supplementary fuel. The range of taxa utilised varied between the different kilns and while this may be due to variations in form and structure, it seems unlikely at this site. The wide range of taxa used suggests little consistent selection of fuelwood. Practices of woodland management cannot be confirmed and there is nothing in the charcoal to indicate the use of coppiced wood. Indeed, it seems likely that the pottery industry at Blackbird Leys was sited at this location because plentiful woodland resources were available in the region.

## SYNTHESIS AND DISCUSSION

### BRONZE AGE AND IRON AGE

Zone A produced limited evidence for probable middle Bronze Age activity, consisting essentially of a small group of pits with associated finds, of which a decorated loomweight was the most significant item. No other features indicative of settlement were recovered, but in view of the truncated nature of the site this is perhaps not surprising. The pottery was not sufficiently diagnostic for a middle Bronze Age date to be absolutely certain, since flint-tempered fabrics are also characteristic of the later Bronze Age in the region. Nevertheless, their general appearance

[57] E.g. C. Cartwright, 'Charcoal', in D.R. Rudling, 'The Excavation of a Roman Tilery on Great Cansiron Farm, Hartfield, East Sussex', *Britannia*, 17 (1986), 221; Gale, op. cit. note 47, p. 68; Gale, op. cit. note 50.

seemed to be more consistent with local middle Bronze Age pottery, such as that from Appleford Sidings. The decorated loomweight fragment was also thought to be of middle rather than late Bronze Age date. Small though it is, this group of pits constitutes the first evidence for settlement of probable middle Bronze Age date from the area of the City of Oxford.

The succeeding settlement probably dated mainly to the middle Iron Age, although some distinctive early Iron Age pottery was present. There is no suggestion for the direct continuity of activity from the previous prehistoric phase. Even if the flint-tempered pottery was of late rather than middle Bronze Age date, the case for continuity would still be unclear. It is possible, however, that settlement foci of the intermediate periods lay adjacent to the excavated area.

The principal components of the Iron Age settlement were a small, penannular double-ditched enclosure that is likely to have contained a round house, and an associated system of small enclosures or fields, indicated by linear features that were generally very shallow, but were presumably once more substantial. The penannular enclosure, however, was unusually well-defined and as far as could be determined, the two ditches were contemporary. The enclosure is perhaps analogous to Enclosure B at White House Road, Oxford,[58] although this was not regular in plan and consisted only of a single ditch during any one phase. It was also smaller than the Blackbird Leys enclosure which, with an internal diameter of 19 m., was relatively spacious and could have contained a large round house with room to spare. Despite the lack of direct evidence, the existence of such a structure is suggested by the south-east facing alignment of the enclosure entrances, a preferred orientation for many round houses during the Iron Age.[59] Noticeably well-defined enclosures of this kind do not appear to have been a common component of otherwise unenclosed settlements in the region in this period. This may suggest that the Blackbird Leys enclosure was of relatively high status, but there is no further supporting evidence for this claim, the artefactual and environmental remains being insufficient to shed significant light on the social and economic character of the settlement. There was no evidence for late Iron Age activity in Zone A.

## THE ROMAN POTTERY INDUSTRY

Activity related to pottery production at Blackbird Leys may have commenced in the early 2nd century AD and continued thereafter, perhaps uninterrupted, until at least the middle of the 4th century and possibly slightly later. What is less clear is the nature of the landscape at the time of the inception of pottery production. It seems certain that in Zone C pottery production took place within a system of enclosures and boundaries that had been in existence for some time. Production did not start in Zone C until the mid 3rd century at the earliest. In Zones D and E, in the latter case with evidence for production in the 2nd century, there was a relationship between linear boundaries defined by ditches and features associated with pottery production. The relative chronology of this relationship is unclear. The location and alignments of kilns generally suggest that these features were subsequent to the establishment of elements of the boundary system. This might be supposed on *a priori* grounds, but hard evidence is lacking. There is no evidence to indicate what the early Roman use of the area might have been.

58 A. Mudd, 'Excavations at Whitehouse Road, Oxford, 1992', *Oxoniensia*, lviii (1993), 41-5.

59 A. Oswald, 'A Doorway on the Past: Practical and Mystic Concerns in the Orientation of Roundhouse Doorways', in A. Gwilt and C. Haselgrove (eds.), *Reconstructing Iron Age Societies* (Oxbow Monograph 71, 1997), 87-95.

The relative complexity of the ditch and gully systems in Zones D and E, and the irregularity of aspects of their layout, suggest development through several successive phases, with the likelihood that some of this development related directly to the growing pottery industry.

Traces of seven kilns were recovered. The single example in Zone C was almost completely ploughed away and nothing can be said about its form, date or likely products, except by extrapolation from the pottery evidence in that zone. The other six kilns, three each in Zones D and E, were variously preserved but all were single flue types with a tongue shaped pedestal, equivalent to Young's type 5,[60] and typical of the later Oxfordshire industry. Most of the Blackbird Leys examples were probably of subtype 5b, though the apparent absence of features such as corbels to support the raised oven floor (characteristic of type 5c kilns) may simply be a consequence of poor preservation. There was no *in situ* evidence of raised oven floors, and (more surprisingly) relatively little unambiguous evidence for such features amongst the fired clay kiln debris. Nevertheless, the presence of such floors seems most likely on the basis of the general form of the kilns. Five of the kilns were aligned roughly NE.-SW.: kiln 376 (Fig. 14) with a firing chamber at the SW. end and the others with the chamber at the NE. end. Kiln 558 (Fig. 12) in Zone D was aligned NW.-SE. and the kiln in Zone C was aligned very roughly N.-S.

There was no clear indication of the presence of workshop structures, although the curvilinear gullies in Zone E6 and the U-shaped gully in Zone C both indicate the possible locations of such (small) structures. Zone D contained other features potentially connected with the pottery production process. In D7, two stone-lined rectangular pits with steep sides and flat bases may have been used to store raw materials. The sides of pit 612 was lined with flat sub-rectangular slabs, although no stones were discovered on the base. Pit 636 was lined with clay-bonded stones. Comparable pits at the Churchill Hospital site were thought to have been used for the short-term storage of prepared clay.[61] The Blackbird Leys features may have been used in the same way. Storage areas would also have been required for large amounts of clay and fuel supplies, but no evidence for such facilities was positively identified. Five possible postholes were noted to the south of the stone-lined pits. If these represented structural remains, the structure would have been approximately 3 m. in diameter. Pit 620, located immediately adjacent to the postholes, may have been used for puddling clay or related activities. None of these features survived to a depth of more than 0.2 m.

Other pits occurred in both Zones D and E. An association with the pottery production process is likely for most of these features, however, specific functions could not be assigned to them. In area D4, pits 569 and 573 belonged to the same phase as kiln 558 (Fig. 12) but their function was uncertain. Gully 560/562 ran from the south of the stokehole of kiln 558 and was filled by very similar material to the stokehole. A large pit (585/584/582) truncated this gully and also appeared to be fed by a similarly aligned gully (586). This pit was used as a dumping area and contained nearly 24 kg. of 4th-century pottery and 16 kg. of kiln debris. A smaller pit (620) of the same phase located to the SW. was used as a dump. The use of these pits and gullies in D4 for dumped waste material was likely to have been secondary to their original, unknown function.

In Zone E, up to eight small pits or postholes recorded in area P may have been used for the preparation of the clay. Pit 368 contained three fills, the second of which was a fine yellowish grey clay. The pit also contained two complete vessels, including a mortarium that

[60] Young, 35-40.
[61] Ibid. 16-18.

appeared to hold several large pieces of burnt sandstone. A notable find from the north side of posthole 370 in the same area was a fragment of an unusually small, thin 'quern' (SF114, see above). The size of this piece, and the stone type, a quartz sandstone distinct from the Forest of Dean, Lodsworth or Northamptonshire materials normally used for sandstone querns in this region, may suggest that this was not a standard quern. The interpretation of this find as the kick wheel for a potter's wheel seems plausible. The other quern fragments from the site may have been utilised either in a domestic context or in the preparation of raw materials such as mortarium grits for potting. A scatter of worked flint fragments was probably incidental, though the use of such objects as possible trimming knives has been suggested.[62] A complete polished stone axe from Zone E was likely to have been used as a tool. This would have been an ideal burnishing implement, and a particularly well-worn slight hollow on one face appears consistent with such use.

The raw materials for potting were presumably all locally available. Clay and sand were readily available, although white firing clay for mortaria and flagons presumably had to be imported from Shotover, approximately 4 km. distant. Water could have been obtained from the Northfield Brook, which lies *c.* 100 m. north of Zone E. Securing a regular supply of wood for firing the kilns would have been particularly important.[63] Although it has been supposed that woodland management might have been practised to ensure a sustainable supply,[64] the evidence from the present site provides no clear support for such a hypothesis (Challinor above). Moreover, recent work in relation to the iron industry of the Weald of Kent and Sussex, where the demand for wood would have been very considerable indeed, also suggests that woodland exploitation relied on natural regeneration rather than conscious management through techniques such as coppicing.[65]

Recent work at Oxford Science Park, Littlemore, immediately west of the present sites, has indicated periodic prehistoric activity in the area. The removal of woodland in the area as a consequence of such activity could have commenced by the middle Bronze Age.[66] With the likelihood of increased clearance during the Iron Age and Roman periods, there was nevertheless a continued presence of alder and hazel along the Littlemore Brook, as indicated by environmental evidence.[67] It is possible that substantial areas of woodland survived to be exploited by the Roman potters. The evidence of arable agriculture during both the Iron Age and Roman periods at the present site is slight and might be considered consistent with consumption rather than production. The system of small enclosures of Iron Age date in Zone A could indicate the importance of stock raising. A pollen sequence from peat adjacent to the Littlemore Brook, however, indicates low levels of cereal pollen through most parts of the sequence correlated with the Bronze Age to Saxon periods.[68] Therefore,

62 Ibid. 19.

63 Cf. P. Booth, 'Warwickshire in the Roman Period: A Review of Recent Work', *Trans. Birmingham & Warwicks. Archaeol. Soc.* 100 (1996), 49-50, for discussion of pottery and tile kiln locations in relation to woodland resources.

64 Cf. M. Henig and P. Booth, *Roman Oxfordshire* (2000), 170.

65 D. Sim and I. Ridge, *Iron For the Eagles; The Iron Industry of Roman Britain* (2002), 39-42. The argument that ceramic production centres were often located adjacent to substantial sources of timber (see note 63 above) itself supports the suggestion that such resources were not systematically husbanded but relied on natural regeneration.

66 Moore, op. cit. note 9, p. 216.

67 Ibid.

68 A.G. Parker and D.E. Anderson, 'A Note on the Peat Deposits at Minchery Farm, Littlemore, Oxford, and their implications for environmental reconstruction', *Proc. Cotteswold Naturalists' Field Club*, xli(i) (1996), 129-38.

some arable agriculture and associated woodland clearance must have taken place. This was evidently not on a sufficient scale to preclude the reclamation of areas for pottery production, though whether this involved a change of land use, utilisation of marginal areas or was prompted by a change of ownership, is impossible to demonstrate.

The present site formed part of a more extensive area concerned with, if not entirely devoted to, pottery production. Three kilns salvaged in 1961 were located *c.* 400 m. north of Zone C at the present site. The range of pottery associated with them was comparable to that seen in the kilns in Zone E, with an evident concentration on white wares (including mortaria) and reduced coarse wares. The dating evidence is also broadly comparable to that from Zone E, with a likely 2nd- to early 3rd-century date range for production.[69] A group of four kilns, associated features and pottery excavated in 1879 at Sandford lay just north of Zone E at the present site.[70] The range of white mortarium and colour-coated ware types[71] suggests that production at the site extended from the later 2nd or early 3rd century well into the 4th century. It is entirely likely that this was the source of the dumps of late Roman pottery encountered overlying the earlier features in Zone E. An extension of the same production complex to the west was indicated by three probable kilns and other features from Minchery Park.[72]

This significant concentration of pottery production activity was only one of a number of such foci in south-east Oxford, and given the incomplete nature of the evidence from all its components it is likely that the figure of 17 known kilns is less than the original total. The distribution of kilns would not have been uniform, however, and the present evidence of localised concentrations within a wider area may be a fair reflection of the real situation. A similar phenomenon was seen at Lower Farm, Nuneham Courtenay, 2 km. to the south-west. The evidence at Lower Farm comes from geophysical survey which indicates a coherent landscape extending for over 500 m. This landscape contained several discrete clusters of kilns, at least 40 in total.[73] There is also a chronological parallel between Blackbird Leys and Lower Farm on the basis of the excavated sample from Lower Farm from *c.* AD 100 to the mid 4th century[74] with a marked emphasis on the second half of the 3rd century. The latter characteristic is comparable with what is seen at Blackbird Leys, and there are notable similarities in the repertoires of the two sites at this time, most particularly in their concentration on mortarium types M17 and M18 and the colour-coated bowl form C45. Certain and probable examples of this form with makers' stamps are known from both sites, with nine stamps from Blackbird Leys plus a further five from the related Sandford site (published by May)[75] and 17 from Lower Farm.[76] These are, by a distinct margin, the largest collections of name stamps from production site complexes within the industry. There was no clear evidence that any individual stamp occurred at both sites, however, the Blackbird Leys/Sandford examples did not include any literate or semi-literate stamps of types seen at Lower Farm.

69 Young, 242-3.
70 G. Rolleston, *Scientific Papers and Addresses* (1884); May, op. cit. note 12.
71 For a summary see Young, 255.
72 RPS Clouston, op. cit. note 15.
73 Henig and Booth, op. cit. note 64, pp. 166-7. Note that the scale on the simplified version of the plot on p. 167 should read 200 m. and not 50 m.
74 Booth et al., op. cit. note 11, p. 164.
75 May, op. cit. note 12, fig. 4.
76 Booth et al., op. cit. note 11, pp. 172-4.

A more detailed comparison of the products of Blackbird Leys and Lower Farm is beyond the scope of this report. The broad parallels between both production areas, however, underline their difference from the product repertoire and chronological range of sites such as the Churchill Hospital. This evidence may suggest that the early focus of the developed pottery industry (i.e. after the introduction of white ware mortaria into the repertoire at about the beginning of the 2nd century AD) lay in this area of south-east Oxford, encompassing Blackbird Leys, Littlemore, St. Luke's Road (Cowley) and perhaps also Rose Hill, with a southward extension as far as Lower Farm and an anomalous outlier further south at Allen's Pit, Dorchester. Later expansion of the industry, particularly in the 3rd century AD, seems to have been principally in a northerly direction, with the Churchill Hospital the best-known individual site demonstrating the process particularly clearly.

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